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CARTWRIGHT LECTURES.

ON THE EXPERIMENTAL METHOD IN MEDICAL SCIENCE.

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LECTURE I.

GALVANI AND GALVANISM IN THE STUDY OF THE NERVOUS SYSTEM.

MR. PRESIDENT AND GENTLEMEN OF THE ALUMNI: In discharging the agreeable duty, which you have kindly imposed on me, of giving the Cartwright Lectures for this year, I propose to offer a few historical sketches, which shall illustrate the manner in which certain parts of our scientific knowledge in medicine have been attained. The connection between scientific and practical medicine is, furthermore, so close that permanent improvement in the one is inseparably dependent on that of the other; but this connection becomes much more evident when we trace the history of any particular department for a considerable period of time. By this means we can see how much of the doctrine accepted by our predecessors has survived the ordeal of a century, and what were the methods of investigation which produced, in their hands, the permanent results which we enjoy to-day.

However much we may pride ourselves on the advances made during our own time, we may be sure that by far the greater part of our actual knowledge is a legacy from the past. It has been winnowed in successive generations from the errors and imperfections which always accompany its first acquisition; and it is probable that many of our own discoveries will require a similar depleting treatment in the future. But we may learn to rely with confidence on such methods of study as have heretofore proved valuable; and we may, perhaps, save ourselves the trouble of exploring certain paths, when we see that others have followed them before and have found that they lead nowhere.

If we can say that any one department in physiology, pathology, and therapeutics is now distinguished by a special activity of investigation and growth, it is probably that of the nervous system. A very large part of this advance has been made by the application of electric stimulus in determining the motor or sensitive properties of different nerves—their influence on the heart and bloodvessels, the localization of special centres in the brain and spinal cord, or the diagnosis of morbid alterations in the cerebro-spinal axis, and the use of electricity in restoring the power of movement or sensation, when impaired by disease, is now acknowledged to be, in many cases, a most serviceable means of cure. This has all come, directly or indirectly, from the experiments of Galvani, nearly a hundred years ago, on the nerves and muscles of the decapitated frog.

In 1789, Galvani was Professor of Anatomy in the University of Bologna. In addition to the regular duties of his professorial chair, he had made a number of valuable investigations in comparative anatomy; such as those on the structure of the kidneys and urinary

ducts in birds, and on the organ of hearing in the same class. Like most of the scientific men of his day, he was greatly interested in the phenomena of electricity, which was then fast developing into an important department of physics. The condition of electrical science at that time was as follows: The machine, for producing frictional electricity by a rotating glass cylinder and cushion, had been brought to practical completion, and was in common use, with its prime conductor and insulating supports. The two opposite kinds of electrical excitement, known as vitreous and resinous, or positive and negative, were fully recognized, as well as the distinction between conductors and non-conductors; and even some of the phenomena of induced electricity were known, though explained in a manner somewhat different from that which is now in vogue.

Beside the electrical machine, experimenters were already in possession of the Leyden-jar, by which a large quantity of electricity may be stored in a given space; the electrophorus, by which a moderate charge of electricity may be generated; electrometers or electroscopes, for detecting the existence and amount of slight electric disturbances; and Volta's "condenser," in which small quantities of electricity, from a feeble source, might be accumulated and made apparent by the electrometer.

Finally, Franklin had shown, by his daring experiment with the kite in the thunder-storm, that the lightning of the clouds was identical in its nature with the spark from an electrical machine; and this had largely directed the attention of investigators to the study of atmospheric electricity, as compared with that produced by artificial means.

Considering the long list of results which have followed from Galvani's early observations, the manner in which they were first made is a topic of much interest.¹ He was in his laboratory, engaged on experiments with the electrical machine, and had, lying upon the table near by, a freshly dissected frog, prepared for some other purpose in such a way that the denuded hind legs were connected with the spinal column by the crural nerves. One of his assistants, accidentally touching the nerves of the animal with the blade of a scalpel, saw the legs convulsed; and on watching more closely, it was seen that the contraction occurred only at the moment of drawing a spark from the conductor of the machine.

Once Galvani's attention was attracted to so remarkable a phenomenon, his mind turned instantly to the investigation of its conditions. He abandoned all other occupations, and seemed absorbed in the attempt to detect its causes, and to learn their modes of operation. He determined in the first place that the discharge of the conductor and the contact of the scalpel with the frog's nerves were both necessary; for the muscular contractions would not take place with either of them alone. But even when both conditions were present, sometimes the muscles contracted and sometimes they did not. Puzzled by this variation, but still confident that it must have a reasonable cause, he at last found that it depended on the way the scalpel was held in the fingers. If grasped by the end of its non-conducting ivory handle, there were no convulsions in the legs when the spark was taken from the machine; but if

¹ Aloysii Galvani de Viribus Electricitatis in motu musculari Commentarius. De Bononiensi Scientiarum et Artium Instituto atque Academia Commentarii, Tomus Septimus 1791, p. 363.

held in such a way that the fingers touched the steel blade, or the rivets which held it in place, the muscles were always thrown into action. The human body, therefore, served as a conductor, and Galvani replaced it with success by an iron wire which he attached by one extremity to the spinal column, above the origin of the nerves, by a brass or copper hook, leaving the other end in communication with the ground. He varied the contrivance in many ways, turning sometimes the attached and sometimes the free end of the conductor towards the electrical machine, increasing or diminishing its length, and at last adding a second conductor, attached to the muscles of the leg. He took special pains to exclude the possibility of any direct transfer of electricity from his machine to the dissected frog, and yet convinced himself, by the aid of Volta's electrometer, that in some way or other an electric discharge passed through the frog and was the exciting cause of its convulsions.

These experiments were all performed with artificial electricity, obtained from the electrical machine. Galvani then passed to his second series of observations, to see whether a similar effect would be produced by atmospheric electricity. On the approach of a thunder-storm he arranged one of the conducting wires so that its upper extremity was in the open air near the roof of his house, and its lower extremity connected with the frog's spinal column, while the other wire, attached to the muscles of the leg, communicated below with the water in a well, and he then waited, like Franklin, for the discharge of a thunder-cloud. The result followed as before; and every peal was accompanied by a convulsive motion in the dissected frog. He especially noticed that the convulsions were simultaneous not with the sound of the thunder, but with the electric discharges; for, as he says, "the muscular contractions and movements of the animal, like the visible splendor of the lightning flash, always preceded the thunder-clap, and, as it were, gave notice that it was coming."

So far Galvani had not really touched upon his final discovery. The phenomena of muscular contraction, in these two sets of experiments, were due, as we now know, to the action of induced electricity.

When he charged the prime conductor of his electrical machine, or when the thunder-cloud was passing over his house, an imperceptible but real disturbance of the electric equilibrium took place by induction in the wires attached to his dissected frog; and when the original electrical tension expended itself in a discharge, there was a similar reaction in his conducting wires, a reaction which necessarily passed through the nerves and muscles of the frog, and threw it into convulsion.

Galvani did not understand this; but he was engrossed with the idea of pursuing the new fact which he had unexpectedly witnessed, and of following its investigation by whatever path might be open to him. So it happened that he was led, in his third set of experiments, to a result of far greater importance, and, notwithstanding that the two former series had nothing to do with this result, so far as the nature of their phenomena were concerned, they were still the necessary and perfectly natural preliminaries to its discovery.

Galvani knew that the violent disturbances of thunder and lightning were not the only ones which take place in the atmosphere, but there were also other changes of electrical condition going on more quietly in ordinary weather. "After having tested," he says, "the action of atmospheric electricity in thunder-storm, I was exceedingly desirous of investigating it in its daily condition of quietude and serenity." For this purpose he hung his freshly dissected frogs, by copper hooks attached to the spinal column, from the iron railing of a balustrade about his house, and left them there exposed to the sky. He thought that, perhaps, imperceptible

exchange of electricity between the clouds and the atmosphere might be betrayed by some movement in the frogs' limbs, and he watched patiently with that object for several days. But there was not the least indication of muscular excitement. At last, seeing that nothing further would come of the experiment in that way, he shifted the position of the limbs, and pressed them, still hanging by their hooks, against the iron framework of the balustrade, and instantly a convulsion took place. He had made a galvanic circuit. The copper hook and the iron railing were the two metals of the battery; and by bringing the muscles in contact with the railing, he had completed the communication, and had seen, for the first time, a muscular contraction excited by the galvanic current.

But, of course, his knowledge of the real cause of the contraction was still very incomplete, and no one could be more conscious of this than himself. He knew how many sources of error there may be in drawing a conclusion from visible facts, until they have been examined from every direction. His most natural inference, if he remained satisfied with this experiment, would have been, that the electrical cause of the contraction came from the atmosphere. "I was very much inclined," he says, "to attribute these contractions to atmospheric electricity, which had accumulated in the frog, and was then suddenly discharged by the contact of the hooks and railings, never having seen contractions produced in this way except in the open air, as I had not yet tried them in any other place; we may be so easily misled into thinking that we have really seen whatever we hope or expect to see." But he soon found that he could obtain the same results in his closed laboratory as in the open air, at any time of the day, in any weather, and under a great variety of conditions; provided only that communication was made between the nerves and muscles by metallic conductors, with no intervening non-conducting material. The best arrangement was that in which the nerves were suspended by copper hooks or armed with tin-foil, while the denuded feet of the frog rested on a silver plate, and the two were then connected by a metallic arc. The human body, being also a conductor, might be interposed between the ends of the arc without lessening the result. Galvani's description of this part of the discovery is an interesting episode, as it corroborates his proof of the electric nature of the force in operation. He found that if he held the frog suspended by its copper hook in one hand, and touched the silver plate with a metallic rod in the other, the frog was convulsed.

Then he called in the assistance of a colleague. "I was staying," he says, "at the country house of the most noble and excellent Signor James Zambeccari, where Signor Rialpo, of Spain, formerly a member of the Society of Jesus, and a very learned man, was visiting at the same time. He had already kindly aided me in former experiments, and I begged him to do so again in this instance. He accordingly took my place in holding the frog, while, partly for convenience, and partly to vary the conditions of the experiments, I, myself, touched the silver plate with my metallic rod. But, contrary to expectation, no movement was produced."

Then the two observers joined hands, and, on repeating the metallic contact, found, "to their delight," that communication took place through the human electric chain, and was manifested by muscular contraction in the frog's legs. From all these results, the conclusion became irresistible that the convulsions, previously observed in the frogs attached to the iron railings, were due to the contact of their metallic supports.

It is perfectly evident that this third set of experiments contains the substance of a new discovery, and Galvani fully recognized the fact. In the two former

series there were external sources of electricity, either in the electrical machine or in the thunder-clouds of the atmosphere; but here all such conditions were excluded—there was nothing to explain the phenomena but the frog's nerves and muscles and the metallic conductors between them. In all Galvani's experiments, his mind was forcibly impressed by this fact; and he was naturally led to suspect that the electricity which caused the convulsions might be derived from the animal body itself.

He made many attempts to determine which of the two kinds of electricity was produced in the nerves and which in the muscles, thinking one of these tissues would naturally be positive and the other negative; but he finally considered the electricity to be distributed on the exterior and in the interior of the muscles, very much as it is on the outer and inner surfaces of a Leyden-jar. The nerve, with its ramifications, leading from the interior of the muscles, he regarded as analogous to the chain and knob of the Leyden-jar; and when it was connected by a metallic arc with the exterior of the muscle, the animal electric battery was discharged, and a convulsion ensued from the stimulus of the shock.

In this way Galvani accounted for the phenomena witnessed in his experiments. He was far from believing that he fully understood all their relations, but he was convinced of their importance, and had no doubt that their obscurities would disappear on further investigation. He especially noticed the advantage of uniting in the armature of the limbs or in the connecting arc different metallic substances. "There is an additional peculiarity," he says, "which deserves attention, and which I have very often observed, in regard to the connecting arcs, namely, that they are vastly more efficient when composed of different metallic substances than when consisting of one and the same metal." But he does not undertake to explain this peculiarity, although he found that, of various metallic combinations, some were more effective than others.

He was perfectly clear as to the prime importance of what he had actually discovered and the secondary value of what was only inferential, and this distinction is expressly stated in his opening chapter. "From all these particulars," he says, "investigated and established by a long series of experiments, we have not only shown that these contractions are due to electricity, but have also been able to indicate certain conditions and laws by which they are regulated. . . . We have also appended to the narrative a number of corollaries, together with some additional conjectures and hypotheses, mainly in the hope of opening the way for further experiments, by which we may at least be enabled to approximate the truth, even if we cannot expect to reach it altogether."

There are some curious surmises in Galvani's book as to the possible future value of his discoveries in the treatment and cure of nervous disease. He recognizes the difficulty of their application to pathology, on his own hypothesis of an animal electricity as the cause of muscular contraction. But they are interesting in connection with the imperfect state of pathological knowledge in his day as compared with the present, and some of his remarks sound almost prophetic. "In regard," he says, "to the cure of paralysis, I see that it is a matter of great uncertainty. For it is not easy to say whether disease be caused by a degeneration of structure in the nerves and brain, or whether it be due to an obstruction of the supposed electrical circuits by the deposit of some non-conducting material."

"But, perhaps," he adds, "the whole thing will some day or other be cleared up by further practice and experience." Galvani did not have to wait long to see a very important advance made in the path which he

had opened. One of his contemporaries was Volta, who had already been for fifteen years professor of physics in the University of Pavia, and who was admirably fitted, both by his capacity and his attainments, for treating a new subject with success.

Volta was greatly attracted by the novelty and character of Galvani's experiments. He repeated them, with many extensions and variations; and he not only verified their results, but was enabled to throw a new light on the immediate cause of their phenomena. His first investigations were communicated in the form of two letters to the Royal Society of London, in 1793, under the title "An Account of some Discoveries made by M. Galvani, with Experiments and Observations on them."¹

In this communication he refers to Galvani's treatise, published two years before, as containing "one of the most splendid and striking discoveries, as well as the germ of others in addition."

Volta naturally approached the subject rather from its physical than its physiological side, and he had a certain mathematical habit of mind that led him to appreciate the value of quantities in such an investigation. He began by determining, in an approximate way, the amount of electrical stimulus capable of producing convulsions in the muscles of the frog.

By using successively smaller and smaller charges from a Leyden-jar, he found that the entire and living frog might be convulsed by electric discharges which would give but very faint sparks, and which would affect only the most delicate of the electrometers then in use. But a recently killed frog, prepared after the method of Galvani, was more sensitive still. In this condition it could be made to contract by an electric discharge fifty or sixty times more feeble, and quite imperceptible with any electrometer unless by aid of the condenser. In this way he exhibited Galvani's frog as a new kind of electrometer or electroscope, of extraordinary sensibility; and he named it accordingly the "animal electrometer." This showed conclusively that in all the experiments with induced electricity, the dissected frog might be convulsed by an electric discharge too feeble to be detected by other means.

Volta then began to investigate the source of electricity in Galvani's third set of experiments, namely, those with the dissected frog and the metallic arc. Galvani, it will be remembered, attributed this electricity to the different condition of the animal tissues, and always made his connection between the nerve on the one hand and the muscles on the other, as he would between the two surfaces of a Leyden-jar.

With the connection made in this way, the effect is really more striking, because the whole of the galvanic current passed through the insulated nerve, and thus produced a corresponding excitement. But Volta found that the two separate elements of nerve and muscle respectively were not essential to the result.

If one metallic armature were placed on the muscle and the other also on the muscle near by, or if they were placed on corresponding muscular parts of the two legs, a contraction ensued on connecting them by the metallic arc. The same thing happened with the nerve. If an armature of silver were placed on one part of the crural nerve above its junction with the muscles, and one of tin-foil at another part of the same nerve still higher up, and connection made between them, the leg was convulsed, notwithstanding that the whole of the muscles, as well as a portion of the nerve, were outside of the electric circuit. This did not correspond with the idea of an animal electric apparatus consisting of the nerve and muscles combined. It was necessary to look elsewhere for the source of the electricity under

¹ Philosophical Transactions of the Royal Society of London, for the year 1793, page 10.

these conditions, and Volta found it in the contact which developed but a minute quantity of electricity, too small to be recognized by any other means at the command of the experimenter; but the dissected frog was an electroscope of such sensibility that it responded to the test, and betrayed the electric discharge by a convulsion.

Volta was in very much the same position for this part of the discovery as Galvani had been in regard to his own earlier observations. He was compelled to recognize its reality and importance without being able to give its explanation. "I confess," he says, "it is not easy to understand how or why the application of dissimilar armatures, that is, of different metals, to two similar parts of the animal, or even to neighboring parts of the same muscle, should disturb the equilibrium of the electric fluid, and drive it from its condition of repose into one of active and continued displacement. But whatever may be the cause of the phenomenon, and whether intelligible or not, it is nevertheless a fact, abundantly established by the experiments already detailed, and further corroborated by those which follow."

For several years Volta continued the study of his subject, and at last found a way of greatly increasing the intensity of the phenomena, by multiplying the number of pairs of his dissimilar metals, so as to form the Voltaic pile. His results were given in 1800, in a letter to the Royal Society,¹ containing a description of his new contrivance.

Each member of the pile consisted of a plate of zinc in contact with a plate of silver. This was covered by a layer of moistened paper or membrane. Then followed a second pair of zinc and silver plates, and so on, alternately; the two metals always recurring in the same order, and each pair being separated from those above and below by moist membranes. With this arrangement the intensity of the action, on connecting the extremities of the pile, was sufficient to cause shocks and muscular contractions in the hands and arms, and to affect the senses of sight, hearing, taste, and touch. Its operation was compared to that of the torpedo and electrical eel, and it received the name of the "artificial electrical organ."

The peculiarity of this discovery was that it introduced into electrical science two new features. Before that time electricity had been obtained only by the combined use of different substances, one of which must be a conductor, the other a non-conductor, as in the frictional machine, the Leyden-jar, and the electrophorus; and when an electrified body was touched by a conductor, the whole of its charge was expended, and it could be electrified again only by receiving a new charge from an extraneous source. But in the electric pile Volta found, to his surprise, a source of electricity in substances all of which were conductors; and, furthermore, a source which seemed inexhaustible, because, however often the two ends of the pile were touched, the same shock was repeated with the same intensity. The inherent force of the pile seemed to urge the electric fluid incessantly forward, returning upon itself in a continuous flow so long as the circuit of conductors remained complete.

Volta attributed this action entirely to the contact of dissimilar metals. This view is plainly expressed in the title of his letter to the Royal Society, and is repeatedly insisted on in the course of the communication. The fluids are moistened membranes, interposed between the metallic pairs, which he regarded only as conductors; and when a saline solution was found to be more efficient than water alone, he thought it was because the salt increased the conducting power of the water.

¹ Philosophical Transactions of the Royal Society of London, for the year 1800, page 403.

In reality, the source of power in the Voltaic pile is the chemical action between the fluid and the metals, one of which is more oxidizable than the other; and for every unit of electric force sent through the circuit, a definite quantity of material undergoes chemical transformation.

The contact of dissimilar metals is not essential to the result, for a current may be produced without it, if we use two different liquids of which one is more decomposable than the other.¹

Neither the first nor the second explanation of the phenomena observed, was, therefore, entirely right, as we understand it. Volta imagined the metals in his pile to act by contact alone, while they are really consumed by oxidation.

In Galvani's experiment, the connecting arc, where the two metals join, is, as Galvani supposed, a conductor and nothing more; but its different extremities, when applied to the animal tissues, form with them a galvanic battery of a single cell, and thus produce the current which excites their contraction. We now use it, for physiological purposes, in a different way. We place the two metallic plates in a cup of acidulated fluid, and make the returning current pass through the muscles and nerves. But the effect is the same, for the active force of the current is equal in both directions.

The results obtained by these two investigations were distinct from each other, but of almost equal importance. Galvani discovered the electric action on nerves and muscles which bears his name. Volta gave to physical science a new apparatus by which current electricity is transmitted in a continuous circuit. Each investigator was partially at fault in the theoretical explanation of his own discovery. But the value of the discovery has remained, and has even largely increased in the course of a century, notwithstanding the difference in its interpretation. It also appears, from the history of the circumstances, that the second of these discoveries was a consequence of the first; and nothing can show more clearly the unbroken connection of events, in the progress of science, which may sometimes extend to the most unexpected ramifications. It is plain that we should not be to-day in possession of the electric light, were it not for Volta's discovery of current electricity, and Volta produced his electric pile in trying to investigate the contraction of Galvani's frogs.

During the early part of the present century experimenters were busily occupied with galvanic electricity. They studied its action in a great variety of ways, and thus became acquainted with its mode of operation, and able to appreciate its phenomena. They found that when it was transmitted through any portion of a muscle, it produced contraction at the instant of closing the circuit; that afterward, while flowing through the nerve in a uniform current, it was without effect; and that contraction again occurred when the current was discontinued. Even during the passage of the current, any sudden variation in its intensity, either of increase or diminution, would produce the same effect. It was the change in the electrical state of the parts, rather than their actual condition, which operated as a stimulus and provoked the contractions. The direction of the current, the length of nerve included within the circuit, and the frequency of making and breaking the connection, all had a certain influence in the result. Experimenters found themselves provided with a new agent, by which they could investigate nervous action at their leisure, in animals deprived of life, with the nerves and muscles exposed to view, and with far more delicacy and certainty than ever before; and the

¹ Daniell, Introduction to the study of Chemical Philosophy, London, 1843, page 492.

familiarity thus acquired with the operation of the galvanic stimulus, prepared them for its more effective use in future investigations.

The next event of sufficient consequence to form an epoch in the history of nervous physiology was the discovery, in 1822, of the distinction of motor and sensitive properties in the two roots of the spinal nerves. Eleven years before, Charles Bell¹ had made some experiments on the spinal nerve roots of a recently killed rabbit, in which it appeared that mechanical irritation of the anterior roots caused convulsion in the corresponding muscle, while a similar irritation of the posterior roots had no such effect. This, however, was not supposed to show an anatomical separation between the two powers of motion and sensibility, but between those of volition and consciousness, on the one hand, and involuntary nervous action on the other. The ideas of the author on this subject were not accepted by his colleagues. In fact, they were not really published, but only printed in pamphlet form for private distribution. They hardly attracted the notice of the professors, and had no influence on the medical doctrines of the day. Subsequently, in 1821, Bell published² the remarkable observation that if the seventh cranial nerve distributed to the face were divided in a living animal, the movements of facial expression were abolished; while the faculty of sensation could be destroyed by cutting the corresponding branches of the fifth pair.

Thus the two main properties of nervous endowment, generally associated with each other, occupied, in this instance, distinct situations; since the seventh was shown to be a nerve of motion only, the sensibility of the face being supplied from another source. This fact was connected, in the researches of Sir Charles Bell, with theoretical considerations of a different bearing; but it had evidently a great importance of its own, and was received on all sides with much interest. It especially attracted the attention of Magendie, then at the height of his activity in physiological investigation. Magendie repeated Bell's experiments on the seventh cranial nerve, and verified their results as to its exclusively motor properties. But he was intent on exploring various other parts of the nervous system; and in 1822 he performed and published his experiments on the spinal nerve roots. His description is a model of directness and simplicity, free from any unwarranted inference or assumption. "I had long been wishing," he says, "to try the experiment of dividing the posterior roots of the spinal nerves, but had never succeeded in doing so, owing to the difficulty of opening the vertebral canal without wounding the spinal cord and inflicting severe or fatal injury upon the animal. But a month ago I received at the laboratory a litter of pups, only six weeks old, and it seemed a good opportunity for another attempt at the operation. This time, in fact, I succeeded, by the aid of a very sharp scalpel, in laying bare, almost at a single stroke, the posterior half of the spinal cord with its membranes. I then had no difficulty, after opening the dura mater, in bringing into view the posterior roots of the lumbar and sacral nerves; and by lifting these roots on the blades of a pair of fine scissors, I was able to divide them on one side without injury to the spinal cord. Not knowing what would be the effect of this operation, I closed the wound by a suture in the integument and kept watch of the animal. At first it looked as if the limb on that side was entirely paralyzed. It was insensible to punctures and to pressure, and also appeared motionless; but soon afterwards I was sur-

prised by seeing it move very distinctly, although it was completely and permanently insensible. After trying a second and a third experiment, with exactly the same result, I began to think it probable that the posterior roots of the spinal nerves might have a function distinct from that of the anterior roots, and more especially devoted to sensibility.

"I next thought of dividing the anterior roots, leaving the posterior roots entire; but that was a thing more easily said than done. There appeared to be no way of getting at the anterior surface of the cord without involving the posterior roots, and at first it seemed a hopeless undertaking. After considering the matter for a day or two, I tried to reach the anterior roots with a sort of narrow-bladed cataract-knife, by passing it in front of the posterior roots, and then turning its cutting edge against the bodies of the vertebræ. This plan failed, owing to unavoidable hæmorrhage from the large veins within the vertebral canal; but while making the attempt, I found that by drawing aside the dura mater, I could catch a glimpse of the anterior roots just where they are about to pass through the investing-sheath. This was enough; and in a few seconds more I had divided as many of them as I wished, on one side only. It may be imagined with what curiosity I awaited the result. It finally came in a perfectly unequivocal form; for the limb, though retaining its sensibility, was completely relaxed and motionless. Finally, not to leave anything undone, I divided both the anterior and posterior roots, causing entire loss of sensibility and motion."

Magendie began his experiments, therefore, by dividing the nerve roots and thus abolishing their functions. In pursuing the subject he tried the effect of their irritation, employing for this purpose both mechanical agents and the stimulus of galvanism. The result of these experiments correspond in general with those obtained by the method of division; that is, galvanization of the anterior roots caused muscular contraction, and that of the posterior roots sensation. There were also certain other phenomena which did not altogether coincide with the doctrine of a complete separation between the two functions, and which were not fully understood until some years later. But Magendie took cognizance of every experimental fact, whether he understood it or not; and his own subsequent researches on "recurrent sensibility" explained many of the irregularities which he at first encountered.

The distinction of properties between the spinal nerve roots was of great importance, because it indicated a general plan of arrangement for the nervous system throughout the body. It immediately became a matter of criticism and verification for the leading physiologists of Europe, and the result was a complete acceptance of Magendie's discovery.

In Germany, John Müller, then Professor of Anatomy and Physiology in the University of Bonn, endeavored to avoid the difficulties of so serious an operation in warm-blooded animals by experimenting on frogs. He examined the spinal nerve roots in these animals, both by the method of section, by mechanical irritation, and by galvanism.¹

"These experiments," he says, "have been rewarded with the most brilliant success. They are so easy of application, so sure and so decisive, that any investigator may now readily satisfy himself of one of the most important truths in physiology. The phenomena are so regular and satisfactory that, for simplicity and certainty of results, they fully compare with any crucial experiment in the physical sciences. Galvanization of the separated anterior roots at once causes active con-

¹ Idea of a new Anatomy of the Brain; submitted for the observation of his friends, by Charles Bell, F.R.S.E.

² Philosophical Transactions of the Royal Society. London, 1821, page 398.

¹ Handbuch der Physiologie des Menschen, Coblenz, 1837. Band I., page 651.

vulsions; that of the posterior roots never gives rise to any sign of spasmodic action."

In this way the distinct endowment of the two kinds of nerve-fibres was experimentally established. Once placed on this footing, pursuit of nervous physiology was greatly increased in efficiency and extent. By applying the galvanic stimulus to a spinal nerve above or below the point of section, its mode of action was determined by the excitability of its motor or sensitive fibres. The same method was employed for the cranial nerves, both externally and at their roots; and every branch of inoculation was scrutinized by the same means. It is hardly possible to overestimate the change thus introduced into the study of the nervous system, and the increased facilities which it supplied for further investigation.

We now come to Marshall Hall's discovery of the reflex action of the spinal cord. Up to this time, the motor and sensitive properties of the nervous system had been understood by physiologists as almost wholly subservient to voluntary motion and conscious sensation. These functions resided in the brain as the organ of intelligence and the source of all spontaneous action. From it the motor nerves transmitted to the muscles the commands of the will, while the sensitive nerves brought to it from without the impressions made on the integument. The spinal cord was part of this apparatus of transmission. Like the spinal nerve roots under the influence of galvanism, its posterior columns were found to be sensitive and its anterior columns excitable, and its complete division at any one point abolished voluntary movements and sensation in the parts below. It was the channel through which the spinal nerves held their connection with the brain.

But Hall observed that, notwithstanding the loss of sensation and volition after removal of the brain, the animal might still be capable of motion in the limbs, provided the spinal cord remained.

Although phenomena of this kind had already been noticed in several instances, they had not been demonstrated with sufficient distinctness to fix the attention of physiologists. Hall's observations were first announced in a communication to the London Zoological Society in 1832. They were further embodied in his *Lectures on the Nervous System and its Diseases*, in 1836, and still more formally presented in his *Memoirs on the Nervous System*, in 1837. Their simplest demonstration was given by him in the following way: In a living and uninjured frog, the signs of sensation and volition are manifested whenever the skin is irritated at any point, since the animal feels the impression and responds to it by a voluntary motion. When the head is cut off, or the spinal cord divided at its upper part, the limbs are paralyzed and sensation is abolished. But if, while the animal is in this condition, one of the feet be pinched, the limb is drawn upward; and the movement may be repeated as often as the irritation is applied. Such a movement is very different from that caused by galvanizing a motor nerve, since the stimulus in this instance is applied to the skin, and the muscles react in consequence. Both skin and muscles must retain their connection with the spinal cord; since, if this connection be cut off, no movement takes place on pinching the foot. Finally, the nerves remaining uninjured, if the spinal cord be broken up, all reaction ceases, and irritation of the skin has no further effect. But does not such a violence destroy the physiological property of the muscles, and in that way prevent their contraction? This doubt is removed by applying a galvanic current to the muscles themselves, when they are at once convulsed, showing that their contractile power is unimpaired.¹

¹ Lectures on the Nervous System and its Diseases. London, 1836, p. 19.

Thus it is the spinal cord, which acts independently of the brain, is a medium of communication between the integument and the muscles. The stimulus conveyed inward, through the sensitive nerves to the cord, is thence reflected outward through the motor nerves to the muscles. From this circumstance it received its name of "reflex action," and, since it was first studied and demonstrated in the spinal cord, it was generally known as the "reflex action of the spinal cord."

But the same form of activity was afterwards found to be very widely extended in the nervous system. The medulla oblongata has its own centres of reflex action, either directly or indirectly essential to the continuance of life. Wherever there is a ganglionic mass of nervous matter, with motor and sensitive fibres originating from it, there is a similar focus of nervous power, often quite disconnected with consciousness and volition. In a state of absolute insensibility, in a man or animal, a touch upon the cornea will cause closure of the eyelids, irritation of the anus will increase the contraction of the sphincter, and the contact of a solid body with the fauces will excite the movement of deglutition; and in all these instances the reaction disappears when its special nervous centre is destroyed.

Similar facts were soon observed in man in cases of paralysis, and nearly all of the phenomena of convulsive affections were seen to have their origin in some unusual irritation of a nervous centre, or in the morbid exaggeration of its excitability. From that time forward the reflex action of the nervous system entered more or less into the whole study of its normal and diseased conditions.

The next topic of special interest in this connection is the influence of the nervous system on the organs of circulation. The earlier approach to definite knowledge on this subject was a very slow one. It consisted mainly in establishing the fact of contractility in the arteries, and was accomplished by experimental enquiries extending over a long time; from those of Hunter on the arteries of animals in 1793, to those of Köllicker¹ in 1849, on the constriction caused by galvanism in the popliteal and tibial arteries of an amputated human limb. A new epoch in the physiology of the circulation was reached in 1851, when Claude Bernard² published the discovery that division of the sympathetic nerve in the neck is followed by enlargement of the head. This effect is so striking and so constant, that when once announced, there was no difficulty in its verification and no doubt as to its reality. Almost immediately after section of the nerve, an increased vascularity becomes visible in the conjunctiva, the mucous membrane of the nostril, lip, tongue, and cheek, and in all parts of the skin on the affected side. It is most distinctly seen in the ear of the white rabbit, because the organ presents a thin expansion of semi-transparent tissue convenient for observation, and because the two ears placed side by side afford a ready criterion of any change in vascularity. In the first report of these experiments the attention of the observer was principally directed to the local increase of temperature which also follows division of the sympathetic, but this was afterward seen to depend on the greater activity of the circulation, which was then recognized as the primary and characteristic result of the operation.

This fact of enlargement of the bloodvessels from division of the sympathetic nerve, at once excited a lively interest among physiologists. Hardly a year had elapsed, when a second observation, equally important

¹ Zeitschrift für Wissenschaftliche Zoologie, Leipzig, 1849, Band 3., p. 259.

² Comptes Rendus de la Société de Biologie, Paris, Tome Année 1851, p. 163.

with the first, was made almost simultaneously by Brown-Séguard, in Philadelphia,¹ Bernard, in Paris,² and Waller, in London;³ namely, that the condition of the circulation, on that side of the head where the sympathetic has been divided, may be regulated at will by experimental means. Suppose that increased vascularity has been produced by division of the sympathetic in the neck. If the stimulus of galvanism be now applied to the divided nerve beyond its point of section, all the previous results of the operation disappear. The bloodvessels contract, the volume of the circulation diminishes, the local temperature is reduced, and the parts resume their normal color, or even become more pallid than before. When the galvanization is suspended, the former conditions return with all the accompanying phenomena of vascularity, temperature, and redness; and the circulation in the part may be in this way alternately increased and diminished for many successive repetitions of the experiment.

It thus appears that the muscular coat of the arteries, supplied with nerve fibres from the sympathetic, is influenced by them in nearly the same way as the voluntary muscles are controlled by the cerebro-spinal nerves. Division of the sympathetic paralyzes the involuntary muscular fibres, relaxes the arterial walls, and allows a larger quantity of blood to pass through the vessels of the part. Galvanization of the nerve, on the other hand, stimulates the muscular fibres to contraction, narrows the calibre of the vessels, and so reduces the volume of the circulating blood. The knowledge of these facts introduced into the nomenclature of the nervous system a new title. There were evidently nerve fibres which acted upon the bloodvessels to call into operation their contractile power; and the nerves possessing such a function, then known for the first time, naturally received the name of the "vaso-motor nerves."

But, in following out this subject, another observation was soon met with, of very different and unexpected character, namely, that certain nerves, on being stimulated, instead of producing contraction of the bloodvessels, cause their relaxation and thus increase the activity of the circulation. This was first shown by Bernard in the case of the submaxillary gland. This organ is supplied with sympathetic fibres from the superior cervical ganglion and carotid plexus, and with cerebro-spinal fibres from the lingual nerve and the chorda tympani. Galvanization of its sympathetic filaments produces, as in other similar instances, contraction of the bloodvessels and a diminished blood supply. But if the stimulus be applied to the lingual nerve above the situation of the gland, or to the chorda tympani which unites with it, the result is exactly the contrary. The bloodvessels enlarge and the circulation is more active so long as the galvanization continues; and this effect is equally marked if the nerve be divided and galvanized between its point of section and the gland.

A similar influence was found to reside in other parts of the nervous system; and the nerves possessing the power of thus causing vascular enlargement were called "dilator nerves." No sooner was this fact established in a general way, than it served to explain a singular phenomenon which had been noticed many years before, but which had thus far been regarded as exceptional, namely, the influence of the pneumogastric nerve on the action of the heart. As a general rule, if the nerve going to a muscular organ be divided, the muscle is paralyzed, and, if the nerve be stimulated, there is a

muscular contraction. As the heart receives filaments from the pneumogastric nerve, we should naturally expect that its action would be diminished by section of this nerve, and increased by its stimulation. But the effect is really the reverse. If the poles of a galvanic apparatus be applied to the pneumogastric nerve in the neck the cardiac pulsations are reduced in frequency, and when the strength of the current is increased to a certain degree they stop altogether. The heart lies quiescent, in a state of relaxation, its movements remaining in abeyance while the galvanization is going on, and when it is suspended they recommence with undiminished energy. The influence exerted in this case is not reflex, but direct in its operation. For if the nerve be divided and galvanized above its point of section, there is no result; but if the stimulus be applied below the section, its retarding action on the heart is at once manifested. Furthermore, the power of this nerve to restrain the cardiac movements, like the motor influence of a spinal nerve, is limited in duration. You cannot permanently arrest the heart, and so kill the animal, by continued galvanization of the pneumogastric. When the galvanization of the nerve has been kept up for a certain time the heart begins to beat again. Its pulsations recur, at first, slowly, afterwards, more frequently, and at last they are restored in full regularity, notwithstanding the continuance of the galvanic current. The nerve has lost its power by expansion, and cannot again manifest its controlling force unless allowed to recover by repose. But the heart is still sensitive to the same influence, and if the electrodes be shifted to the pneumogastric of the opposite side it stops as quickly as before.

It must be admitted, therefore, that the influence of the pneumogastric, whatever it may be, which controls the heart's movements, is transmitted from within outward to the peripheral extremities of the nerve; and that it acts in a positive way. It is the most striking illustration of a kind of action in the nervous system, unlike any of those formerly known, but not the less real for being difficult to understand. This is the so-called "action of arrest;" an influence which passes through a nerve from its nervous centre to a muscle, and by which the muscular contraction is suspended. As often happens in such cases, when the existence of this mode of action was once realized, it appeared that there were other instances of the same thing, which had been overlooked. All the sphincter muscles, though habitually in a state of involuntary contraction, are suddenly relaxed at certain periods, by an influence coming from within. The bloodvessels generally received both kinds of nervous impression, and by the varying preponderance of one or the other, they are alternately made to contract or dilate, with all the accompanying changes of local circulation. In this way it became possible to explain the mechanism of temporary physiological congestion, as in secreting glands, or in the alimentary canal during digestion, and those of longer continuance with increased nutrition, like the growth of the uterus and mammary glands during pregnancy, as well as morbid disturbances of the circulation in disease.

Quite a different line of investigation was inaugurated by Helmholtz, in 1851, for determining the rapidity with which nervous action is transmitted through the motor nerves.¹ The idea of measuring, with any approach to numerical precision, the movement of the intangible nerve-force, through its fibres, would seem at first almost beyond the scope of reality; and yet it was accomplished with satisfactory success and by perfectly genuine experimental methods. It would have been impossible were it not for improvements in the galvanic apparatus and the registering machines, which have

¹ Philadelphia Medical Examiner, 1852, vol. vii., p. 489.

² Comptes Rendus de la Société de Biologie, Paris, 1852, Tome iv., p. 168.

³ Comptes Rendus de l'Académie des Sciences, Paris, 1853, Tome xxxvi., p. 378.

¹ Comptes Rendus de l'Académie des Sciences, Paris, 1851, Tome xxxiii., p. 262.

played so important a part in the more recent investigation of animal physics. The knowledge and use of the induced electric currents we owe to Faraday; and their discovery in 1831, with all the related phenomena of electro-magnetism, magneto-electricity, and the production of instantaneous and rapidly alternating opposite currents, practically revolutionized the use of electricity for medical purposes. It also supplied essential facilities for experiments on the rate of transmission of the nerve-force.

The conditions necessary for such an experiment were twofold. First, an instantaneous induced current, for causing a single muscular spasm; and secondly, an automatic registering apparatus, which should mark the exact time, both of the electric stimulus and of the muscular action. By this means a definite result was obtained. With the electrodes applied to the muscles of a frog's leg, an interval, amounting to the one-hundredth part of a second, appeared between the closure of the circuit and the contraction of the muscle. The muscular contraction, therefore, was not an instantaneous effect, but required a certain time to get under way after the application of the stimulus. This interval was not perceptibly altered on applying the electrodes to the nerve at or near its entrance into the muscular tissue. But if they were applied higher up on the nervous trunk, the delay became longer; and it was increased in subsequent trials, exactly in proportion to the distance between the muscle and the point of the nerve stimulation. It represented, accordingly, the time required for the nerve-force to traverse a given length of nerve fibre; and by repeating the test under various conditions, its rate of movement was fairly determined.

These experiments, first performed on the nerves and muscles of the separated frog's leg, were afterwards extended to those of the living man—the electric stimulus being applied to the skin over the situation of a nerve at different points, and the connection indicated by the swelling of the parts over the muscle. In all the investigations thus far, the nerve was excited by the artificial stimulus of electricity.

Subsequently, Burckhardt¹ simplified the experiment and increased the value of its results by employing, instead of electricity, the natural stimulus of volition. The subject being placed in connection with a proper registering apparatus, the signal for voluntary effort was given by the sound of a bell; and the movement was performed in different instances by different muscles. Under these conditions, the time necessary both for volition and for the mechanism of muscular contraction, would be the same in all cases; but that required for traversing the motor nerve would vary according to the muscle employed. A voluntary impulse, starting from the brain, would arrive at the deltoid muscle after travelling a certain distance, but it would follow a longer route to reach the adductor of the thumb. The distribution of the crural nerve to the quadriceps extensor muscle is comparatively remote from its origin, and that of the sciatic nerve to the dorsal muscles of the foot more distant still.

The difference in the time of muscular contraction, observed in these cases, corresponded with the different lengths of nerve conveying the stimulus; and it gave, for the passage of the voluntary impulse, in man, through the motor nerves, an average rate of twenty-seven metres per second.

A similar contrivance for measuring the transmission of tactile impressions through the sensitive nerves, gave their rate of movement as forty-seven metres per second, showing a greater rapidity of transmission for sensitive

impressions than for motor impulses, and by comparing the results of further experiments with the known quantities obtained in this way, a close estimate was reached of the time needed for the operation of the different senses, and even for the cerebral acts of perception and will.

When these observations were made on different persons, there was always a certain amount of variation in the result, the nervous action being in some cases more rapid, in others comparatively slow. This brought within the range of definite physiological experiment a fact first noticed in astronomical observatories, namely, that two observers, both watching for the same event, seldom see and record it at the same time. There is a difference in the quickness with which they receive its impression on the senses, and in each case there is a certain amount of delay, so that in neither the one nor the other is the phenomenon perceived at the time of its actual occurrence. In astronomical operations where extreme accuracy is required, as in transit observations for the determination of longitude, this personal imperfection of the observer needs to be corrected from a previous examination of his habitual error. In the Report of the United States Geographical Surveys for 1877, it is stated by Dr. Kampf that the personal error from this source varies somewhat, in the same individual, from day to day; so that its amount should be ascertained and the proper correction made, for each person, whenever a longitude observation is about to be taken.

There is still another point to be noticed in connection with the modern study of the nervous system, namely, the localization of function in different regions of the brain.

The most striking part of this subject relates to the special centres for motion and sensation in the cerebral convolutions. There are few discoveries which have seemed more at variance with our former convictions than that of the existence of these centres. Both the substance and the surface of the cerebrum had often been subjected to experimental examination, both in the living and the recently killed animal, without showing any signs of muscular reaction; and it was the universal belief among physiologists that none of its parts were directly subservient to any form of motion or sensibility. So industrious and skilful an observer as Longet² declared in 1869 that he had "irritated by mechanical means the white substance of the hemispheres in dogs, cats, rabbits, and birds, and had stimulated it by the application of potassa, nitric acid, or the actual cautery, as well as by the passage of electric currents in various directions, without ever bringing into play the involuntary muscular contractility or convulsive movements, and similar applications to the gray substance of the convolutions were equally without effect."

From these failures it seemed hopeless to anticipate any further results from direct exploration of the cerebral substance. The brain was generally considered as so exclusively the organ of intelligence, that it could not be expected to respond to the stimulus of physical agencies. In the extremely condensed and valuable work of Ecker on the *Convolutions of the Brain*, the author says in his preface, that "the accurate observation of patients by their physicians, in connection with careful autopsies, is the only means by which we can ever hope to learn the physiological significance of particular cerebral convolutions." This preface was dated March, 1869; and in 1870, Fritsch and Hitzig³ discovered, by experiments with galvanism

¹ *Traité de Physiologie*, 3me Edition. Paris, 1869, Tome III., p. 146.

² *Archive für Anatomie, Physiologie, und Wissenschaftliche Medicin*, Leipzig, 1870, p. 300.

³ *Die Physiologische Diagnostik der Nervenkrankheiten*. Leipzig, 1875, p. 32.

on the dog's brain, that there are certain parts of the cerebral convolutions where this stimulus always produces definite and unmistakable movements on the opposite side of the body. The contraction of certain groups of muscles, and consequently particular movements in the trunk or limbs, are connected with the stimulation of particular points of the brain; and where such a point is once found, the corresponding movement may be produced at will by repeating the application of the stimulus. There is plainly, in some way or other, a communication through definite nervous routes from the special centre of motion on the surface of the hemisphere to the motor tract in the medulla and spinal cord, and thence to the muscle which performs the contraction.

In all the animals used for experiment, these special centres are grouped in certain regions, while other extensive portions of the cerebral surface show no such indications; and by comparing their position in different species, aided by observations in human pathology, it appears that in man the motor centres for the body and limbs of the opposite side are mainly located in the anterior and posterior central convolutions, immediately bordering on the fissure of Rolando.

Thus the earlier failures and the more recent success in the discovery of the motor centres are both explained. It is true that a large part of the cerebral surface is inexcitable. You may apply the galvanic electrodes to twenty different points of the convolutions without the least sign of a muscular contraction; but on the twenty-first trial you may strike one of these centres, and then the muscular spasm immediately follows. We are now so well acquainted with their probable location in any particular brain, that we need not lose a great deal of time in finding one of them; but, before the geography of their distribution was known, it is not surprising that experimenters should have overlooked their existence.

The account given by Fritsch and Hitzig of their discoveries was exceedingly well expressed, and bore internal evidence of its faithfulness of description. All the phenomena were fully explained, and the results were stated in such a way that other observers could easily follow in the same direction and test their reality. Some doubt was entertained in various quarters as to the interpretation of the phenomena, and particularly how far the muscular contractions might be due to a diffusion of the galvanic current beyond the limits of its immediate locality; but this doubt was removed after repeating the experiments by a variety of methods, and the existence of the motor centres was corroborated by subsequent discoveries in the minute anatomy of the parts and by observations on the local alteration of structure in cases of hemiplegia. The subject is still so new, and in so active a condition of development, that it can hardly be presented in the form of a complete or well-defined physiological doctrine; but it is evidently a matter of great importance, and is probably receiving, at this time, a larger share of attention than any other single topic relating to the nervous system.

Its latest extension is connected with the centres of *sensation* in the cerebral hemispheres. As some parts of the convoluted surface of the brain are plainly subservient to muscular action, it is natural to infer that the remaining inexcitable portions may have a similar connection with the power of sensibility; and it is asserted by some, with more or less confidence, that the senses of touch, taste, smell, sight, and hearing are separately located in as many different regions of the cerebral cortex. The experimental evidence of these localizations is far from being altogether satisfactory; but in one instance at least it is very striking, and indicates beyond doubt a close relation of visual sensibility with the "angular convolution," on the posterior and lateral

part of the cerebral hemisphere. If this convolution be extirpated, the operation is followed by blindness of the opposite eye, without any other perceptible disturbance of either motion or sensibility. As other parts of the same brain surface, of equal or greater extent, may be removed without causing impairment of vision, it is difficult to avoid the conclusion that this region has a special connection with the sense of sight. The exact nature of the connection will doubtless be better understood from further investigation.

The complete history of physiological science for the last hundred years, in regard to the nervous system, can hardly be given in the space of a single lecture. But its most important advances are so connected with each other, that they have a relation very much like that of cause and effect. When a new subject of inquiry is first opened, the progress made is for some time a slow one. There are difficulties in the way, which must be overcome by repeated experiments, by gradual improvement in the apparatus, and by better methods of procedure. The causes of the phenomena are imperfectly understood, and their relation with other observed facts is not immediately apparent. But when the knowledge acquired has reached a certain point, its evidence becomes more rapid. Every addition enlarges the circle of its operations, and enables it to execute them with greater facility, and the results attained by this means are not always those most directly anticipated. One discovery often leads to another by bringing into view incidental facts, which in turn become the sources of new information; and in that way it creates opportunities for future progress, which are sometimes realized in their fullest extent only after an interval of several generations.

There is no more interesting department of physiological study, at the present day, than that of the vasomotor nervous system. Since it was first practically inaugurated by Bernard, thirty years ago, it has been cultivated by many observers, and has received a wide extension in many directions. It touches on most important points of pathology, as well as the functions of health. The connection between secretion and blood-supply, the mechanism of congestions, the dependence of external disturbances of the circulation on disease of internal parts, the red cheeks of pneumonia, the hectic of pulmonary phthisis, and the existence of nervous centres in the cerebro-spinal system, where these changes are controlled by reflex action, are all made capable of investigation by knowledge which has been derived from this source. But how could their study have been ever attempted unless we were already in possession of the simpler facts of reflex action of the spinal cord, and the different behavior of motor and sensitive nerve fibres? All the variations in the effect produced by electric stimulus of different kinds and intensity, the comparative influence of direct and inverse currents, the exhaustion of nerves by continued stimulation, and their recovery by repose, together with many other similar conditions, were indispensable stages in the progress of discovery, and were the fruit of many intermediate investigations. But each series depended, for the possibility of its existence, on another which had gone before, and they all had their origin, in a continuous line of descent, from the experiments of 1789 in Galvani's laboratory at Bologna.

ORIGINAL ARTICLES.

THE ABORTIVE TREATMENT OF FELON WITH COPAL VARNISH.

BY A. B. ISHAM, M. D.,
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FELON, or whitlow, has brought into practice devices intended to be curative, both professional and

domestic, nearly as numerous as bronchial catarrh. The maxim seems to find application here, that where a great number of agents are vaunted as specifics in a single affection, none have much value. At least, in my experience, the results of the various so-called abortive measures of treatment in felon have been very unsatisfactory. In fact, so utterly worthless had they proved, that I was about to settle down into the old routine method of poulticing and incisions, when one day, about a year ago, I met by chance a burly colored brother in a drug store; one of his hands was enveloped in flannel bandages of enormous dimensions, while his countenance and his groans betokened an intense degree of physical suffering. He volunteered the information that a regular physician to whom he had applied had pronounced him the subject of a deep-seated felon of the palm of the hand, and had proposed an incision through the inflamed tissues. Before submitting to incision, however, he intended to test the virtues of a prescription recommended by a sage of his own race, one who made plane surfaces, or the souls of sinners white, as exigencies demanded. The remedial agent advised was copal varnish. Flannel bandages were to be saturated with this, the affected part enwrapped therein, and dry flannel envelopes externally were to complete the dressing.

Three days thereafter I again saw the same individual carrying a hod. He wore a triumphant expression, and the previously bandaged member was bare, and, to all appearances, normal. He said that within a few hours after the application of the varnish, the pain ceased, and the swelling and heat were rapidly reduced. I made mention of the case to the physician who was reported to have been consulted. He stated that when he saw the hand there was a severe phlegmonous inflammation, that the member was swollen to apparently twice its natural size, and that, in all respects it resembled whitlow of the palm in the acute stage.

Notwithstanding the rather remarkable resolution in this instance, my anticipations from the employment of copal varnish in prospective cases of felon were by no means sanguine. The cogent influences leading to a trial of it, were that it was simple and harmless, and that it would serve to satisfy patients that something was being done for them fully as well as anything else, while it could not be inferior to any plan of treatment in vogue, short of free incision.

Since the observation above detailed, thirteen (13) cases of whitlow have presented to me for treatment. In six of these cases a formation of pus having already occurred, they were not deemed fit for the trial of the varnish, and incision was resorted to. In the other seven cases the varnish was the only agent used. The terminal phalanx of the thumb was the part involved in two; that of the index-finger in five cases. In all there was swelling, redness, heat, and great pain; in one a vivid erysipelatous blush extended over the thumb, wrist, and extensor surface of the forearm; in two cases there was apparently a combination of what is popularly called "run-around," with felon of the flexor digital surface, about and near the point. Perhaps in none was the

periosteum involved, though several did not differ from cases I have seen in the acute stage, where necrosis and extrusion of the terminal phalanx subsequently took place. In all the seven cases to which the varnish was applied, there was a rapid subsidence of the inflammatory process and its accompaniments, and by the second or third day, the parts were perfectly normal.

If the varnish upon the dressings become unpleasantly hard by drying, it may be softened by adding fresh material from time to time. Its removal may be easily accomplished when found desirable, by rubbing in lard, and then washing with soap and water. Upon the basis of the good results of this limited experience, I shall yet continue to treat felon, and local acute inflammations of external parts, previous to the formation of pus, with copal varnish. No good could be expected of it, except possibly to relieve pain, after suppuration had ensued, since it is a cardinal axiom in surgery that, where pus is formed, it must have exit.

The rationale of the action of the varnish in such cases demands a consideration of the nature of inflammation, and the composition and properties of copal varnish.

According to the most authoritative observations, the initial process in inflammation consists in a dilatation of the peripheral vessels of the tissues compromised. Previous to this dilatation of capillary vessels, some influence has been transmitted to nervous centres impressive to vital conditions of particular structures, and from these centres the dilating impulse has been reflected through vaso-motor nerves. With dilatation, there is increase in the quantity and rapidity of the blood flow. Soon, however, the arterioles leading to the turgid capillaries undergo a contraction of their calibre. Then the capillary blood current is slowed, and the white globules arrange themselves against the vessel walls. There is a migration of these bodies through the walls, the liquor sanguinis transudes into the tissues, and the red blood disks aggregate in rouleaux in the vessels. Completing the process is an active cell proliferation in the inundated tissues.

Copal varnish is composed principally of copal resin and spirits of turpentine. Turpentine, according to the best information I can obtain, constitutes about three-fourths of the mixture, and to it, chiefly, we would attribute the beneficial action the varnish seems to possess in resolving whitlow. The use of turpentine in the treatment of localized inflammation is by no means new. As a topical application, it has been highly extolled in traumatic erysipelas, in boils and carbuncles, peritonitis, hepatitis, pleuritis, and pneumonitis. Its irritant properties hardly need mention. It is well known that it is rapidly absorbed into the system when brought into contact with the skin. That it has a great affinity for oxygen is also familiar. An instance is reported where a lad was found in an asphyxiated state in a cellar where turpentine was stored, and an examination of the cellar air showed that it had been nearly deprived of its oxygen. As the turpentine is separated from the varnish by absorption and evaporation, the resin contracts and hardens. Three ways are therefore

conceivable whereby copal varnish may promote resolution of local inflammation:

1. *By an irritant action.*—Experiments conducted under the microscope upon the inflamed web or mesentery of the frog, have shown that stasis has been overcome, and a flow established in blocked capillaries subjected to the irritation of dilute caustic soda solution, dilute sulphuric acid, ammonia, croton oil, etc. The ingredient of copal varnish which produces irritation is turpentine. A current restored in such manner, and operated upon by other forces, to be presently noticed, may continue, thereby stopping transudation and the migration of leucocytes. The changed conditions of circulation and pressure, resulting from the inflow of fresh blood, facilitate drainage from the surcharged tissues, reduce the bulk of the inflamed part, and materially conduce to a restoration to the normal state.

2. *By withdrawing oxygen and arresting oxidation.*—The attraction which turpentine manifests for oxygen has already been mentioned. By appropriating oxygen in the tissues, which it readily penetrates, it may modify oxidation processes, check cell proliferation, and liquefy inflammatory products so that they can be taken up by the absorbents, and be carried away for elimination. The power of turpentine to absorb oxygen also suggests that, in yet another way, this may not be by any means the least important of its capabilities. It has been shown that certain parasitic microphytes are present in furuncle and abscess, the origin and course of which are attributed to some special activity of such organisms. The researches of Dumas has established that these microphytes can be destroyed by boracic acid, which deprives them of oxygen. Dr. Loewenberg has recently made practical application of boracic acid in furunculosis, with an arrest of development in one instance from local application. Micrococci are found in the abscesses of felon as well as in those following other inflammations, and they are entitled to the same consideration as respects causation. Their vitality is destroyed by turpentine, by boracic acid, and some other agents, by withdrawing their oxygen. And turpentine has a superiority over other substances of this class as a local application, since it more readily penetrates the tissues, and exerts a wider and stronger action.

3. *By excluding air and by pressure.*—The idea that the atmospheric air, in contact with inflamed surfaces, exercises a deleterious influence, is as old as medicine. The varnish forms a coating impermeable to air, and therefore entirely excludes, from this source, any agency operating to favor inflammatory action. The varnish in drying contracts and exercises pressure. The value of pressure, in modifying and subduing inflammation, is familiar to all. Bandaging and strapping inflamed members are modes of applying pressure of the most common practice. Pressure moderates the supply of blood delivered to the part, while, at the same time, it promotes the removal of waste matters and tends to maintain a steady and continuous stream.

The above conclusions go to indicate that any varnish into which turpentine enters largely would serve as well as the copal. While the turpentine it-

self is doubtless the most important factor in the resolution, alone employed, it might be inefficient, since the resin, by forming a coating and by the pressure it exercises, may supply essential elements, and without which combination the former might be of slight advantage.

SYMPATHIES OF THE PAROTID GLAND.

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OF ALLEGHENY, PENNA.

A GREAT deal of interest has been lately manifested in affections of the parotid gland, which induces me to report some cases which came under my observation.

John G., a boy of ten years, was attacked with typhlitis. I need not detail the symptoms; will only say it was a well-marked case of inflammation of the cæcum. After a few days' treatment, the symptoms of inflammation in that region seemed to disappear, and the left parotid gland swelled and went on to suppuration.

When the gland grew better, symptoms of inflammation again appeared in the region of the cæcum; these symptoms again suddenly subsided, and the right parotid inflamed and suppurated. When this parotid became better, symptoms of inflammation again appeared in the region of the cæcum. An abscess was finally formed, which discharged healthy pus, and the boy got well, with evident adhesion of the intestine to the parietes of the abdomen. This boy lived for some years in pretty good health, when from violent exercise—playing base-ball—a rupture was produced, an artificial anus formed, from the effects of which he finally died.

In this case there was no evidence of the formation of pus in the region of the cæcum, until after both parotids had recovered; nor were there at any time symptoms of blood-poisoning.

Being impressed with this case, which seemed to me to be merely transferred irritation from the cæcum to the parotids, I was disposed to refer swellings of the parotid, in cases of typhoid fever, to transferred irritation from the glands of Peyer, but I have never witnessed in cases of typhoid fever anything more than a swelling and tenderness of the parotid.

Within the last year I attended a case of severe atonic dyspepsia, in consultation, in which there was also very much of the nervous element.

The stomach became so intolerant of everything except water, that we determined to let it severely alone, and nourish our patient with nutritive enemata; these were composed of beef-tea, brandy, and tr. opium, and were administered every four to six hours. About the fourth day of this procedure the left parotid became painful, swelled so much that the patient could not separate his jaws more than about half an inch, and the socia parotidis seemed very much like going on to suppuration.

Believing that the inflammation of the parotid was likely excited by transferred irritation from the enemata, and the stomach having become somewhat more tolerant, we ceased the enemata. With the aid of poultices the parotid swelling soon began to subside and get well without any suppuration.

I am well aware that inflammation of the parotid occurs in a number of other diseases, as in influenza, but there is associated an aphthous stomatitis, which is, no doubt, the direct cause of the inflammation of the parotid; such also is the case in small-pox.

Inflammation of the parotid occurs in the plague, but in this disease the whole glandular system is very much affected; and so, too, in its congener, typhus fever, inflammation of the parotid is apt to occur.

That very peculiar disease the "mumps," stamps the parotid as an organ differing from all other glands, especially in its sympathies. The above cases are reported to call attention to the fact that the parotid gland takes on inflammation from other causes than septicæmia and the peculiar poison of mumps.

A PRACTICAL POINT CONCERNING EPISTAXIS.

BY GEORGE M. LEFFERTS, M.D.,

PROFESSOR OF LARYNGOSCOPY AND DISEASES OF THE THROAT, COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK, ETC.

FREQUENTLY recurring, but slight, attacks of bleeding from the nose, specially in children, are a familiar experience to all practitioners. Persistent, prolonged, and repeated hæmorrhages, although rarer, are not unusual, and, finally, ones dangerous in their long continuance and from their frequency are occasionally encountered—hæmorrhages that weaken and exsanguinate the patient; hæmorrhages that recur daily—even several times a day, for weeks and months—and in all classes, be it borne in mind, in subjects otherwise to all appearances well, in short, without apparent demonstrable general or local cause. Such cases, specially the former, are not the exception; they constitute the rule in practice; for the infrequency of epistaxis due to extensive traumatic lesion, and the rarity of that due to deuteropathic causes, will be conceded. Too often have they baffled all well-meant and carefully-studied general, often local, measures, for their relief; and hence, probably, the multiplicity of theories and wealth of advice which may be found in the journalistic literature of to-day concerning their treatment.

We are all familiar with the routine. The simple cause, to which I shall call attention, not being, to say the least, generally appreciated, resource is had to the internal administration of hæmopstatics (iron, ergot, belladonna, etc.), or the general application to the nares of styptics (by tampons, pledgets, syringe, soluble bougies, etc.), perhaps to both or all means combined; and, as experience proves, often without success, persistence or recurrence being the rule.

A simple and easily made examination of the anterior nares, with a suitable light and speculum, even without the latter in many instances—an examination that needs neither expert hand nor eye—will reveal the cause of the conditions described, as almost invariably lying in a small, seldom extensive, erosion of the mucous membrane of the cartilaginous septum, just above the point of the former's junction with the skin. The term ulcer cannot be correctly

applied to the lesion—certainly not in its earlier stages, and as commonly seen; for although there is of necessity some loss of substance, no marked excavation exists except in extreme cases. Catarrhal conditions may or may not coexist; they probably will, but it must be borne in mind that neither erosion nor ulceration are features of simple nasal catarrh. On the contrary, I believe that these erosions are always the result primarily of the direct mechanical irritation or injury caused by the forcible and repeated removal of the slight crusts of inspissated mucus formed, in the first instance by various accidental circumstances at this point (a slight concavity here is no unusual circumstance), the finger being the common instrument. The epithelial covering of the parts thus once disturbed, the subsequent steps of the process follow. Secretion mixed with blood, in greater or less quantity, readily lodges upon this as upon any irregular surface or point in the nasal passage, dries into a hard crust in the respiratory current, is again removed mechanically, and each time bleeding follows, either directly as the result of the tearing away of the crust, from the slightest cause such as blowing the nose, or even spontaneously, its amount varying with the extent and duration of the lesion, and being dependent upon the unusual richness of the blood supply (small arterial branches) of the septum over other parts. The process thus instituted and continued, naturally follows the usual pathological course of any interference with a wound surface, and, unless timely and judicious treatment cut short its course, the constantly deepening erosion, the constantly increasing crust of blood and mucus, both dependent upon the constant mechanical irritation, can lead to but one result, viz., perforation of the septum, an accident by no means as infrequent as is supposed.

If the cause in these cases of recurrent epistaxis be as I have described, and repeated observations have convinced me not only as to its correctness but likewise of its frequency, the futility of all general constitutional measures, and the uselessness of all imperfectly directed local ones for its relief, is apparent. The secret of success lies in the careful, *direct* treatment of the eroded point; with this care even, patience is also necessary. The condition is often an obstinate one to deal with. The reparative process is slow, and relapse is often the rule. The indications will suggest themselves; acute hæmorrhage, either profuse or moderate, is at once controlled, inspection readily showing its origin, and its location permitting as readily of direct compression or of direct styptic treatment. Foremost in the successive steps then stands avoidance of the habit of direct interference and irritation of the eroded point upon the septum, by the patient, in the removal of crusts, for confirmed habit, this will be proven to be, in the majority of cases, and the prevention of the crust formation upon the abraded surface, by the unremitting use of vaseline, or some form of unirritating ointment. The judicious use, not the abuse, of astringent solutions locally, carefully applied, then play their useful role. Copper will be found to be the best; nitrate of silver is, as a rule, to be avoided. Care, patience, and per-

sistence are the only elements now necessary for the attainment of success.

First impressions may seem to stamp the point that I make as trivial, but I feel assured, having so often been practically convinced of its diagnostic and therapeutic worth, that it will commend itself when, attention being directed to it, familiarity has demonstrated, as it must, its importance.

HOSPITAL NOTES.

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

A SERIES OF CASES OF ANEURISM.

(Reported by WILLIAM E. HUGHES, M.D.,
LATE RESIDENT SURGEON.)

THE number of cases of aneurism treated in the University Hospital in a part of 1881—greater than usually falls to the lot of one hospital in the same time—with the various modes of treatment, and the different results obtained, leads to a belief that a report of them may be interesting. The case of ligation of both common carotids (Case IV.), is especially worthy of attention from its extreme rarity.

CASE I. Popliteal Aneurism.—Service of Dr. JOHN ASHHURST, Jr. Wm. G., white, miner, æt. sixty-one; admitted December 12, 1880. Twenty years before had been struck with the sharp end of a pick in the popliteal space. The wound healed, and gave him no trouble for nineteen years. About six months before admission, he noticed a pulsating swelling, which gave slight pain, and interfered somewhat with walking. The swelling grew rapidly, until, on his admission, it had attained to the size of a child's head. The tumor was not well defined, the blood evidently being distributed in the tissues of the leg and thigh. Posteriorly there was a pointed prominence over which the skin was reddened, and the temperature increased, resembling very strikingly the pointing of an abscess, and threatening to burst at any moment. The case was such an urgent one, that any attempt to resort to a cutting off of the blood supply to the aneurism was not to be thought of, and only amputation of the leg was practicable, which was done at the lower third of the thigh. The patient died three days afterwards of exhaustion. On examination of the tumor, the blood was found extravasated into the tissues, dissecting up the intermuscular septa for some distance in the thigh, and pushing before it the fibrous tissue, so as to form a sort of sac. In the posterior wall of the popliteal artery was an orifice three-quarters of an inch long by one-eighth of an inch wide, with rounded, smooth edges, out of which the blood had poured. The sciatic nerve pierced the mass of blood clots, while the popliteal vein had been pushed posteriorly and to the inner side. From the appearance of the orifice, it was evident that the original wound to the artery had cicatrized, and afterwards, consequent on some strain or recurrence of inflammation, the cicatrix had given way, permitting the blood to escape.

CASE II. Popliteal Aneurism.—Service of Dr. D. HAYES AGNEW. George D. G., German, white, æt. sixty; admitted May 25, 1881. Impossible to get any connected history of his case. He was a laborer, necessarily exposed to much heavy lifting and many severe strains. His account of the aneurism, was that it commenced as a small swelling, in the right popliteal space, about two years before admission into the hospital, at first not giving him much inconvenience. No history of any strain or injury to which it could be traced. He denied having had syphilis. When admitted, the aneurism (in the right popliteal space), was as large as

a closed fist, preventing full extension of the leg, and giving rise to much pain and uneasiness. Pressure on the popliteal vein had caused the leg, below the knee, to become swollen and cedematous to a slight extent. The tumor presented all the characteristic signs of aneurism, pulsation, thrill, bruit, etc. For a few weeks the patient was placed at perfect rest on a low diet and full doses of iodide of potassium, but no improvement making itself manifest, it was determined to try digital compression, the femoral artery below the origin of the profunda femoris being selected as the point to be compressed. Pressure controlled the pulsation in the aneurism perfectly, the tumor becoming relaxed and softer, and diminishing perceptibly in size. Digital compression was maintained steadily at night from about 8 P. M. till 8 A. M. Through the day, pressure was made sometimes by a horseshoe tourniquet, and sometimes by means of the finger. Compression was continued four nights and three days. At the end of the fourth night, pulsation had entirely ceased in the sac, which had become much firmer, and pulsation had developed in two of the articular branches about the knee. Digital compression had been maintained in all fifty-two hours; pressure by the tourniquet, thirty-two hours. The patient was placed in bed with the limb in a slightly flexed position. At the end of three weeks, the tumor had diminished much in size, was hard and firm, and there was a complete absence of pulsation and bruit. The patient was discharged cured.

CASE III. Popliteal Aneurism.—Service of Dr. AGNEW. George H., colored, gardener, æt. forty; admitted June 1, 1881. Eighteen months before, in jumping from a ditch, he slipped and fell; as he slipped, he felt a severe pain in his left popliteal space, with a sensation as if something had given way. Shortly afterwards he noticed a small swelling, which grew rapidly and steadily, and was attended with pain. He had not had syphilis. On admission, the aneurism (in the left popliteal space), had attained the size of two closed fists, and was attended with pulsation, thrill, and bruit. The leg was partly flexed, and could not be moved. Below the knee it was markedly swollen and cedematous, though pulsation in the arteries of the foot was distinguishable. Pressure by Esmarch's bandage was first resorted to, the bandage being applied from the foot up to the lower edge of the tumor, then from the upper edge of the tumor to the groin. It was kept on an hour, the patient being placed slightly under the influence of ether. At the end of the hour the bandage was removed, when it was found that pulsation was as vigorous as ever. After the failure of this treatment, and owing to a difficulty in obtaining aid in making digital compression, Dr. Agnew determined to ligate the femoral artery at the apex of Scarpa's triangle, the carbolized animal ligature being used. Pulsation and bruit in the tumor ceased, and it became flaccid. The wound at first healed superficially, but in a few days suppuration in the deeper parts became manifest, and it was reopened. The swelling of the leg increased, and marked tenderness developed over the aneurismal tumor. A few days after the operation, pleurisy, with some effusion, developed in the left side, but soon subsided. Sixteen days after the ligation, secondary hæmorrhage occurred from the proximal end of the artery, but was controlled, before much blood had been lost, by ligating the artery in the wound above the seat of the original ligature. After this the swelling in the leg gradually increased, and blebs formed on the great toe. Ten days after the hæmorrhage, pleurisy reappeared in the left side, running on into pneumonia of the left lung, and the patient died about five weeks after the original ligation. No post-mortem examination was made of the aneurism.

(To be concluded.)

MEDICAL PROGRESS.

RESECTION OF THE ANKLE-JOINT FROM THE FRONT.—Dr. C. HUETER describes in a recent number of Langenbeck's *Archiv. f. Klin. Chirurg.* a method of excising the ankle-joint, which he has recently practised with success. It was suggested by the consideration that it is from the front that the best view of the joint surfaces can be obtained and the removal of carious foci of bone most readily achieved. The difficulties in the way of such a proceeding are, however, evident, and previous to our recent experience of the successful suture of severed tendons and nerves, they were insuperable. But this experience has enabled Hueter to carry out his desired procedure. He makes a transverse incision from the back of one malleolus to the back of the other, places a double ligature on the anterior tibial artery, and cuts the vessel between, and divides its companion veins and nerves. The tendons of the tibialis anticus and extensor longus pollicis are cut, and that of the extensor communis digitorum drawn aside or cut as may be necessary. The capsule of the joint is then opened from the front, and the diseased surfaces of bone sawn off or gouged out. The real difficulties of the operation now commence. The divided nerves—anterior tibial and musculo-cutaneous—are united by fine sutures through the paraneurotic loose connective tissue. The cut tendons are in the same way joined, not end to end, but overlapping each other, so that the uninjured peri-tendinous tissue around the two ends is in contact. Of course every precaution must be taken to secure primary union of the wound.—*Lancet*, Dec. 17, 1881.

SEPARATION BETWEEN THE PATELLA AND ITS TENDON.—Mr. RUSHTON PARKER reports in the *British Medical Journal*, for December 17, 1881, a case of ununited wide separation between the patella and its tendon, in a boy aged twelve years, which was cured by incision and antiseptic suture with copper wire. The patella was firmly attached to its tendon, though one inch higher up than the one on the opposite side, and muscular motion was restored; passive motion was not employed in the treatment.

OVARIOTOMY DURING PREGNANCY.—At the meeting of the Royal Academy of Medicine of Belgium on November 26, Dr. GOLENTAUX related the particulars of two cases of ovariectomy, which he had performed successfully during pregnancy. The two patients were present at the meeting. In the first case the operation was performed in the end of June, 1877, for a right ovarian cyst, the patient being then five and a half months gone with child. In the middle of October an infant was born, which weighed 3235 grammes. In the second case, also, the right ovary was removed, and at about the same period of pregnancy. The operation was performed on the 15th of September last. The patient has since then been very well, and the child gave signs of life about the middle of October. The pregnancy is running the usual course, and everything betokens the probability of a good confinement.—*Lancet*, Dec. 17, 1881.

CLOGGING OF THE INSTRUMENT IN LITHOTRITY.—In the *Maryland Medical Journal*, for January 2, 1882, Dr. ALAN P. SMITH reports an instance in which, after crushing a hard mulberry calculus in the bladder of a man aged sixty-three, it was found that the jaws of the instrument were clogged, and could not be closed, an interval of three-fourths to one inch remaining between the blades. After numerous attempts at closure, the instrument was forcibly withdrawn through the urethra,

the bladder washed out, and the patient placed under opium. A good deal of hæmorrhage and pain followed, with ecchymosis, but no urinary infiltration. The patient did well after the first day.

LOCOMOTOR ATAXY FOLLOWING SMALL-POX.—At a general meeting of the Harveian Society of London, Dr. C. G. HENDERSON read the notes of a case of confluent small-pox followed by ataxy. The patient, George A., aged thirty-five, was admitted to the St. Pancras Tent Hospital on May 27, 1881. His temperature, which had ranged between 100° and 102° Fahr., rose suddenly on May 31, reaching in a few hours 107.8° Fahr., and he was then immersed in a bath at a temperature of 68°, for fifteen minutes. His temperature was then 96°, but it rose gradually in the course of the next eighteen hours to 104.4°, and the bath was repeated. No hyperpyrexia or other complication followed, but convalescence was much protracted, large bullæ having formed on the soles of both feet, leaving scabs which separated very slowly. On the 18th of July, when he began to get up, he suffered from numbness and tingling of the feet, legs, and hands; the knee-jerk and ankle-clonus, as well as the skin reflexes, were absent, and he lost his balance when the eyes were closed. No myosis was present. After leaving the Tent Hospital, he attended as an out-patient at University College Hospital. He slowly gained power in his legs, but, when last seen, the knee-jerk was still absent. Dr. Henderson referred to similar cases recorded by Landouzy and others, and considered the lesions causing the patient's symptoms were probably analogous to those found in diphtheritic palsy, and other forms of paralysis noticed after acute diseases. They differed from those of true locomotor ataxy in the more favorable course which they took, ending, in the majority of cases, in recovery.—*British Med. Journ.*, Dec. 24, 1881.

INFLUENCE OF THE CHOROID ON THE ACUTENESS OF VISION.—At the meeting of the *Académie des Sciences*, on December 5, 1881, M. FANO presented a note on this subject. Most physicists and physiologists have only attributed to the choroid the role of absorbing, by its pigment layer, the luminous rays which pass through the retina, in order to prevent their being reflected forward again from the back of the eye. The choroid is generally compared to the black lining usual in optic instruments. M. Fano, however, believes that the choroid has a more important function. Inasmuch as it is essentially a vascular organ, it has for its function the transferring to the retina the greater part of its nutritive elements, the central artery of the retina, and its branches being insufficient to supply so marked a functional activity.—*Gaz. Med. de Paris*, Dec. 24, 1881.

AN UNUSUAL CASE OF INTESTINAL OBSTRUCTION.—At a recent meeting of the Northumberland and Durham Medical Society, an interesting case of obstruction of the bowels was recorded by Dr. DRUMMOND as having occurred in his hospital practice. The patient, a male, aged fifty-four, was admitted into the Newcastle-on-Tyne Infirmary for constipation, vomiting, and suppression of urine. The first symptoms—constipation, with pain in the right hypochondrium, especially after eating—had been noticed eight weeks before; and, for nearly three weeks, there had been occasional vomiting and complete obstruction. The usual therapeutical manœuvres failing to give relief, and the patient's condition becoming urgent, it was deemed expedient to explore the abdominal cavity; and this Dr. ARNISON, the senior surgeon to the hospital, proceeded to do by abdominal section. An incision was made to expose a mass which could be felt through the abdominal walls, occupying the position of the ascending colon. The

peritoneum covering the mass was livid, and, from its appearance and relations, was taken for intestine and opened. There was found a tubular cavity containing dark, loose blood-clot, of offensive odor; and, contained also within this cavity, at about the position of the hepatic flexure of the colon, was a calculus, of the size and shape of a large nutmeg. The condition of the patient, who was observed to be sinking, and who shortly afterwards died, prevented further exploration. At the post-mortem examination, Dr. Drummond discovered an aneurism of the hepatic artery, which had ruptured its walls, and the contents of which, on becoming diffused, had passed down behind the mesentery, and, pressing upon the ileum a few inches above the cæcum, had thus brought about complete occlusion of the gut. The calculus, a biliary one, was evidently derived either directly from the gall-bladder or from one of the hepatic ducts. A circular space, two and a half inches in diameter, was absorbed on the under surface of the liver, corresponding to the position of the gall-bladder, which, at the post-mortem examination, could not be found. The case, we believe, is almost unique in the annals of abdominal surgery.—*Brit. Med. Journ.*, Dec. 31, 1881.

PORRO'S OPERATION.—A patient, aged thirty-six, nine months pregnant, who had been sixteen hours in labor, was admitted to Queen Charlotte's Lying-in Hospital, at 10.20 P.M., on December 10. Her lower limbs exhibited extreme rickety deformity, and the conjugate diameter of the brim of the pelvis measured one inch and a half. The os uteri was dilated to the size of a shilling-piece, and the pains were feeble and unfrequent, and the patient's strength not much impaired. After consultation with Dr. Hope, Dr. Percy Boulton, and Dr. Brodie, Dr. Grigg performed Porro's operation, in which he was assisted by Sir W. MacCormac and Dr. Boulton. A living child was extracted. The mother did well up to twenty-four hours after the operation, when she died suddenly. The post-mortem examination by Dr. Allchin revealed incipient peritonitis, but nothing to account for the patient's sudden collapse was discovered, and it was inferred that death resulted from the shock of the operation.—*British Med. Journ.*, Dec. 17, 1881.

NERVE PROSTRATION AND HYSTERIA CONNECTED WITH UTERINE DISEASE.—In the *Lancet*, for May 28 and June 11, Dr. W. S. PLAYFAIR reported four remarkable cases of neurasthenia, growing out of old-standing uterine disease, entirely cured by the systematic treatment, brought under the notice of the profession by Dr. S. Weir Mitchell, in his brochure on "Fat and Blood." In the number of the same journal for December 10, 1881, he states that in the past six months he has had many opportunities of carefully studying this subject with the result of giving him daily increasing confidence in Dr. Mitchell's method as an invaluable aid in managing such classes of disease.

TREATMENT OF DETACHMENT OF THE RETINA BY GALVANO-PUNCTURE.—Detachment of the retina, according to Dr. ABADIE, is most frequently dependent upon a local cause, as it occurs ordinarily suddenly in cases of myopia associated with no diathesis whatever. It can therefore be treated by purely surgical means.

Clinical observation, pathological anatomy, and experiments on animals show that the retina forms adhesions to the choroid wherever there are areas of spontaneous or provoked choroido-retinitis; if, therefore, such adhesion can be produced artificially, it can be hoped that the retina will be fixed to the underlying membranes. In order to produce this result, Dr. Aba-

die punctures the sclerotic and choroid with a delicate platinum knife, heated by the galvanic current, as far behind the ciliary region as possible. The ocular membranes being thus perforated, the sub-retinal fluid escapes, and an adhesive inflammation is produced which maintains the retina in place. This method of treatment has been employed in eight different cases: in six instances of extensive old separation only slight benefit was produced, but in two cases, where the detachment was limited, most satisfactory results followed. In no case was the reaction too violent, or have any unpleasant consequences occurred.

Struck by the considerable reduction of interocular tension which remains after galvano-puncture of the eye, Dr. Abadie has made use of this method of treatment, with the happiest results, in cases of glaucoma which resist treatment by iridectomy and sclerotomy.—*L'Union Médicale*, Dec. 6, 1881.

EPIDEMIC OF ECTHYMA IN SMALL-POX CASES.—M. RENDU has seen in the Tenon Hospital a number of cases analogous to those recently described by M. du Costel. M. Rendu, however, believes that the eruption is more closely allied to pemphigus than ecthyma. In 1870, during the epidemic of variola, M. Rendu also saw this eruption occur in the cases in St. Antoine Hospital. In some cases the appearance of this complication does not modify the course of the variola; in others, as soon as the ecthyma appears, the temperature rises as much as two degrees or more. The general condition of the patient may be aggravated, and fatal septic accidents may occur from this secondary eruption.—*Bull. Gén. de Thérapeutique*, Dec. 15, 1881.

RELATIONS OF ANGINA PECTORIS TO DIABETES.—At the meeting of the *Académie de Médecine*, held on the 22d of November, M. VERGELY, of Bordeaux, read a paper with the above title, of which the following are the conclusions:

1. The attack of angina pectoris may be associated with diabetes.
2. The attack may be simple, or accompanied by intermittent neuralgias.
3. It can occur independently of any cardiac affection.
4. In attacks of angina pectoris, the urine should always be examined to determine whether the neurosis or neuralgia is not associated with diabetes.—*Bull. Gén. de Thérapeutique*, Dec. 15, 1881.

HOSTILITY TO THE LOCAL USE OF ATROPIA AND DUBOISIA.—In the *Maryland Medical Journal*, for December 15, 1881, Dr. JULIAN J. CHISOLM reports a case of a woman aged seventy, who, after having for a long time systematically made use of atropia after an operation for cataract, suddenly developed a hostility to its action; its use four times being distinctly followed by severe facial erysipelas. A four-grain solution of duboisia was then substituted for the atropia, with the effect of producing decided mental disturbance.

THE MANAGEMENT OF FEVER IN CHILDREN.—The antipyretic treatment of fever in children by cold water, quinine, and salicylic acid, is the subject of some remarks by Dr. FÖRSTER (*Jahrb. f. Kinder*, xvi.) The indication for their employment may be stated to be when danger supervenes from either the height or the duration of the pyrexia. Accurate observations are still wanting on the effect of cold baths, but their therapeutic value is greater than in adults, and their action more intense, since the body-surface is greater in proportion to the body-volume in children. There appears to be considerable difference between rectal and axil-

lary temperatures after cold baths, and a marked fluctuation for some time afterwards. In cases where baths are not applicable, cold packing, sponging, or spraying may be employed; but the effect is not so marked. Quinine and salicylic acid have a more permanent effect than cold water, and should be given to children in doses much larger relatively to their body-weight than is the case in adults. Their use is frequently followed by vomiting; and in those diseases attended by failure of the heart's action, as diphtheria, quinine is to be preferred.—*London Med. Record*, Dec. 15, 1881.

BATTEY'S OPERATION FOR INTERMENSTRUAL PAIN.—An interesting and instructive case is recorded by FEHLING in a recent number of the *Archiv für Gynäkologie*. The patient was aged thirty-one, married for eight years, but sterile. Menstruation was painless, but the patient said that she suffered from severe attacks of pain, which came on from fourteen to sixteen days after one menstrual period, and lasted till three days before the beginning of the next. The cervix uteri had been incised and dilated; the uterus had been depleted; the patient had tried one of the bath cures, —but without benefit. She had had an attack of scarlet fever, during which the pain was quite absent. It was thought that the pain was connected with the maturation of Graafian follicles, and therefore spaying was advised; Professor Hegar concurring with Dr. Fehling in this recommendation. The operation was performed in June, 1880, both ovaries being completely removed; and the patient recovered. The ovaries were thought to possess an unusually tough and hard tunica albuginea, and the number of follicles was considered unusually small; but examination, both with the naked eye and the microscope, failed to detect anything else abnormal about them. The patient left the hospital four weeks after the operation, and remained well for six or eight weeks later. Then the pains began to return, and soon became as bad as ever. Hæmorrhage, similar to that of menstruation, also recurred. The patient, therefore, was not benefited by losing her ovaries. We have had occasion to speak strongly on the wrong done to medical science by authors who rush to announce their cases as cures before there has been time to ascertain whether the ultimate result has been beneficial or not. This case shows the necessity for caution before assuming that benefit immediately following extirpation of the ovaries will be permanent. Only in cases which have been watched for a long time can anything be safely said as to whether they have been cured or not.—*Med. Times and Gazette*, Dec. 10, 1881.

TREATMENT OF PHIMOSIS BY DILATATION.—In a recent clinical lecture delivered at La Pitié, Prof. VERNEUIL recommends the treatment of phimosis by dilatation, as first advocated by Nélaton, rather than by circumcision. His mode of operation is very simple. He anesthetizes the patient, as it is advisable to proceed as slowly as possible, and to obviate the pain inherent to the operation. He draws out the prepuce, and commences by introducing a grooved director between the prepuce and the glans, and then passes a second grooved director along the groove of the first. In this way a commencement of dilatation takes place, and he then introduces a common dressing-forceps, opens it, and withdraws gradually, distending the prepuce just as the anus is dilated by a speculum. Since he has had recourse to this procedure he has never yet met with a failure. All that can happen is a slight rupture of the preputial mucous membrane, giving rise to a few drops of blood. When the prepuce thus dilated is everted, the glans is washed with some carbolized water. If the dilatation has been very considerable,

the prepuce can be closed over the glans. If not, there will be a paraphimosis, which should be dressed with lead lotion, without any fear that gangrene of the glans or the penis will be produced by strangulation. Still, gangrene of the glans does occasionally take place, without any satisfactory explanation being possible.—*Med. Times and Gaz.*, Dec. 10, 1881.

PORRO'S OPERATION, SUCCESSFUL RESULT FOR BOTH MOTHER AND CHILD.—WERTH, in the *Arch. f. Gyn.*, xviii., s. 293, reports this case in which Cæsarean section had been twice before performed on account of a highly contracted pelvis, and in whom he performed Porro's operation without difficulty, and according to Veit's advice, before the commencement of labor. The child was born with left-sided facial paralysis. The pedicle was treated outside of the peritoneum, and the general principles followed which are advised by Hegar (*Ab. f. Gyn.*, 1880, s. 265). In order to prevent septic infection, the pedicle was covered with a thick coating of benzoate of soda, after its raw surface had been superficially charred with the thermocautery, and wiped with a ten-per-cent. solution of chloride of zinc. By this means suppuration was prevented, there was no febrile reaction, and the patient was able to leave her bed five weeks after the operation.—*Centralb. f. d. Med. Wissen*, Dec. 10, 1881.

BORACIC ACID IN FETID SWEATING.—Dr. GEORGE THIN speaks in the highest terms in the *Practitioner*, for December, 1881, of the use of boracic acid in cases of offensive sweating of the feet. He employs a solution of boric acid in glycerin incorporated with a fatty basis of white wax and almond oil; this gives a soft homogeneous cream, free from all irritating crystalline plates and quite permanent.

A NEW AID TO THE DIAGNOSIS OF UNILATERAL DISEASE OF THE KIDNEY.—Dr. M. GLUCK sends a communication to the *Centralblatt für Chirurgie* for December 10, in which he refers to a new method of discovering in a case in which removal of one kidney seems advisable, whether or not the kidney of the opposite side retains any secreting substance. He proposes that as small an incision as possible shall be made over the kidney to be removed, and that then the ureter shall be sought, and compressed either by a temporary ligature or the application of a pair of forceps. When this is done, some material which is certain to make its appearance rapidly in the urine, such as ferrocyanide of potassium or iodide of soda, is to be injected subcutaneously, and successive drops of urine are to be tested for the presence of the drug by means of a catheter introduced into the bladder. It seems to be suggested that the appearance of the material injected in the secretion of the opposite kidney will be a justification to proceed with the operation, though we must confess to certain misgivings on this head. We can conceive a very imperfect kidney—that is to say, one that would be far from sufficiently healthy to fulfil the whole requirements of the body—which might still secrete enough of the injected material to allow of its being rapidly discovered in the urine; and thus it appears to us that the test might give undue confidence to the operator. If, after a sufficient time has been allowed to elapse, the urine from the presumably unaffected side gives no reaction, it is advised to release the ureter of the diseased side, and test the urine coming from it. The writer adds that the experiment could not be made in cases where, owing to anatomical complications, the ureter of the affected kidney could not be reached, and that it would prove delusive if there happened to be a horse-shoe kidney, the existence of which would, of course, seri-

ously interfere with the diagnosis under any circumstances.—*Med. Times and Gaz.*, Dec. 17, 1881.

RÜTHELN.—Dr. C. M. JONES describes a number of cases of this disease, and gives an excellent table in which the clinical history and symptoms of rütheln and measles are contrasted. He believes that it should be regarded as a specific exanthem:

1. Because of its contagious reproduction of itself.
2. Because it does not afford immunity from any other disease, nor does any other disease afford immunity from it.
3. Because of the peculiarities of the eruption.
4. Because of the peculiarities of the temperature.
5. Because of the absence of desquamation.
6. Because of the absence of sequelæ.—*Boston Med. and Surg. Journ.*, Dec. 29, 1881.

OPTICO-CILIARY NEUROTOMY AS A SUBSTITUTE FOR ENEUCLEATION.—Dr. JOSEPH A. WHITE objects to the method of optico-ciliary neurotomy generally recommended for the prevention of sympathetic ophthalmia, on account of the difficulty in readjusting the recti muscles when cut and the danger of an oblique muscle being unintentionally divided. His operation, which he has three times successfully employed, is performed as follows: A meridional incision is made through the conjunctival and subconjunctival tissues from the upper border of the external rectus to the outer border of the superior rectus, thus exposing the sclerotic. A strabismus hook is then inserted under each of these muscles, and with them an assistant pulls the eye down and towards the nose. A small lid elevator is then hooked under the upper lip of the incision and drawn up, thus making a large opening through which the curved scissors can be passed behind the eyeball, and the optic and ciliary nerves cut. Knapp's double hook is then inserted into the posterior part of the sclerotic and, without any trouble, the cut end of the optic nerve and its surroundings are exposed to view at the incision. The sclerotic is then carefully cleaned with the scissors—thus cutting away sections of the optic and ciliary nerves. As long as any blood oozes from the opening, it is kept open. When this ceases, a conjunctival stitch is put in, and cold-water dressing applied.—*Virginia Med. Monthly*, Dec., 1881.

ARTERIO-VEINUS ANEURISM.—In the *Virginia Medical Monthly* for December, 1881, Dr. E. L. KEYES publishes a valuable historical paper on *Arterio-Venous Aneurism*, in which he details a case unsuccessfully operated on by Annandale's operation, the patient dying of septicæmia. Dr. Keyes believes that in a young anæmic case it would be better to use palliative treatment, and not undertake any operation. If, however, an operation is undertaken, amputation should be performed antiseptically if all hæmorrhage cannot be controlled absolutely. He also draws attention to the varying pathological structure of an arterio-venous aneurism.

ALBUMINURIA IN FEBRILE DISEASE.—From an elaborate study of this subject, Dr. EMIL ECKSTEIN concludes that febrile albuminuria is dependent upon a local process in the kidneys, especially in the epithelium, of an inflammatory nature, and that this process is dependent upon an infection of the kidney caused either by the actual passage of parasitic organisms or by the inflammatory action of the poisonous principles in solution. An acute nephritis can also be produced by this infection, and Dr. Eckstein believes that acute infectious nephritis and the febrile affection of the kidney are only different grades of the same process, or, in other words, that the kidney affection

dependent upon fever is merely an abortive form of acute infectious nephritis.—*Deutsche Med. Woch.*, Dec. 17, 1881.

THE EFFECTS OF GYMNASTICS.—M. ROUHET has developed in his thesis the researches undertaken in M. Marey's laboratory, on the general influence of gymnastics and muscular effort. Under all forms of muscular exercise, as has been long known, the rhythm of the heart and respiration are accelerated, and the temperature increased. While the cardiac movements are increased there occurs also a dilatation of the peripheral vessels, probably dependent upon the increase of temperature, and as a consequence of the dilatation, there is an increased loss of heat. It is by this means that the animal heat remains within normal limits. The respiration becomes slightly accelerated, but especially changed in rhythm, the amplitude being deeper than before. By these deeper and more frequent respiratory movements there is an increased exhalation of water from the pulmonary surface, and an increased loss of heat through the expired air. In addition, on account of the more marked thoracic aspiration, there is a facilitated and more rapid pulmonary circulation, and, as a consequence, increased gaseous interchange. M. Marey insists that increase in the amplitude of the respiratory movements does not last only during the time of exercise, but that individuals who practice gymnastics regularly have as a consequence a permanent increase in their inspiratory vigor.—*Revue Scientifique*, Dec. 10, 1881.

EXCISION OF THE KNEE IN EARLY LIFE.—From a paper on this subject, Dr. WILLIAM STOKES draws the following conclusions:

1. Excision of the knee should not be looked upon as a last resource, but should be undertaken, if possible, before any profound organic changes take place.
2. Expectant treatment, to be efficient, must be undertaken at an early stage of the disease, and extend over a period of at least two years.
3. No better result than ankylosis can be looked for by this method.
4. In a patient with a predisposition to secondary tuberculous developments, the possibility of the recurrence of the disease after expectant treatment must be borne in mind.
5. In cases attended with prolonged suppuration, the chances of the occurrence of visceral, especially renal disease, must not be lost sight of.
6. Where the skin is unbroken, the disease limited, an efficient method of fixation applied, and a rigid system of antiseptic dressing of the wound adopted, primary union may, in the majority of cases, be anticipated.
7. When these latter conditions are fulfilled, excision of the knee-joint cannot be longer regarded as the formidable procedure it was formerly held to be.
8. The alleged unfavorable results of excision of the knee-joint in early life are opposed to more extended clinical experience.—*Brit. Med. Journ.*, Dec. 10, 1881.

SALIVARY SECRETION FROM CONJUNCTIVAL IRRITATION.—The interesting work of Dr. ASCHENBRANDT proves that all irritating fluids when applied to the conjunctiva, produce a secretion of saliva in carnivorous animals, and he has worked out the complex path of nervous communication. He has also found that atropia inhibits this salivary secretion; that the secretion of the parotid gland is under the control of the glasso-pharyngeal nerve; that the sympathetic is not included in the nerve communication, and that in all instances the secretion is produced by a reflex action.—*Deutsche Med. Wochenschrift*, Dec. 10, 1881.

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SATURDAY, JANUARY 28, 1882.

SMALL-POX.

REPORTS of the spread of this disease continue to appear in the daily press, and the National Board of Health has formally declared it to be epidemic in the United States.

This formal declaration is necessary to permit of the use of the fund set apart by the act making appropriations for the use of the Board during the current fiscal year, as follows: "For aid to local quarantine stations, and for aid to Local and State Boards of Health, to be used in case of epidemics, \$100,000."

Probably the reason for the delay on the part of the Board to take this action has been that it has, until quite recently, received no requests from either local or State Boards for pecuniary aid, and that it has not considered it prudent to make available a fund guarded by such a special proviso, until it should have some evidence that it was actually needed.

Now, however, we understand that at least one such demand has been made, and that there is a prospect of others. In our last issue we referred to the desirability of having every emigrant to this country protected by vaccination. At the present moment this is, of course, more necessary for the protection of the emigrants themselves than it is for that of our own citizens, seeing that the disease is already prevalent in those places to which emigrants usually first resort; but the principle is the same in either case. We are glad to learn that the great steamship companies are about to deal with the matter on common-sense business principles, and insist that all emigrants shall be vaccinated at the place where they embark for this country, and thus prevent the delay

which would otherwise be required at the quarantine stations on this side.

The result of all this will be that when we have passed through the present epidemic, we shall have a system of protection from another invasion of the disease from abroad; a system by no means perfect, it is true, but still a vast improvement on the "happy-go-lucky" fashion in which we have managed the matter heretofore.

INTERNATIONAL COPYRIGHT.

IN our last we briefly called attention to the condition and prospects of our home medical literature as it has flourished thus far in the absence of international copyright, and we showed that the lack of the stimulus which such a measure is expected to afford had not prevented the satisfactory development of the literature of our science. The fact is that the influence of such legislation upon production of this nature is much less than is popularly supposed. Professional men, unlike professional literateurs, write from many motives, among which that arising from expected pecuniary rewards is frequently, perhaps, the least. Many labor from an honest ambition for fame, or from a sense of duty to their fellows; many others, because a well-written and successful work is one of the surest aids to professional success; others, again, blessed or cursed with the literary temperament, find in composition a congenial employment for the leisure hours, which, during the earlier years, at least, of professional life, are too numerous in the experience of nearly all of us. In a commercial sense, therefore, the supply is not regulated by the demand; and even as the greatest pecuniary offers would not tempt some men to write, so the prospect of unpaid labor will not deter others.

How little, in fact, the commercial spirit has to do with these matters is shown by comparison of the value of literary property in England, whose medical writers, protected by copyright, have virtually no foreign competition to dread, with that of America, where we are constantly assured that native literature cannot flourish in consequence of its exposure to competition with uncopyrighted English work. The fact is that medical writers in America are paid fully as well as, if not better than, their English brethren. A very large proportion of all the medical works which are issued from English presses are published "on commission,"—that is, at the expense and risk of the author; and it is perfectly fair to assume that in a majority of cases the author finds that the returns do not equal the outlay. Publishing "on commission" is far less common in this country. In the case of successful works the receipts of authors here are apt to be larger from the fact that they are usually paid by a "royalty,"

while in England the custom prevails, when books are not issued on commission, of a purchase outright of the copyright by the publisher, in which case the interest of the author ceases, unless he may receive some small payment for the revision of subsequent editions. There can be no doubt that the sums received by the late Dr. Dunglison and by the authors of the *United States Dispensary* exceed the aggregate paid to the most successful English authors of medical works. As regards journalism, we think that we can assert with safety that the compensation paid by the *News* for original contributions is fully as large as, if not larger than that paid by any English medical periodical.

We therefore believe that those will be disappointed who look for any very marked improvement in the status of American medical authors, and any very decided stimulus to the development of American medical literature, from the adoption of an international copyright. Nor, on the other hand, do we, for the same reasons, anticipate any very great increase in the prices of medical books from such cause, provided the measure be such as to insure the manufacture of books in this country in the styles and forms which experience has shown to suit our markets. At the same time, there is a principle of equity involved which must render all right-minded men desirous of seeing literary property properly protected and the rights of the author recognized.

As our readers may not be familiar with the existing condition of the question, we may briefly state that for some time past negotiations for a treaty with Great Britain on this subject have been carried on by our minister in London, Mr. Lowell, under instructions from Washington, and it is understood that substantial agreement has been reached upon the principal features of a convention. These negotiations have been delayed, first, by the change of administration last March, and then by the assassination of President Garfield, leading to the recent withdrawal of Mr. Blaine from the State Department. What are the views of the new Secretary, Mr. Frelinghuysen, we are not advised, but it is not likely that he will take a different view of the matter from that of his predecessors. One difficulty, however, in the way of an international copyright convention, is the fact that the Constitution intrusts to Congress exclusively the power of regulating copyright; so that the framing of a convention on this subject is a usurpation of the executive over the legislative department of the government, unconstitutional in itself, and requiring, to give it vitality, legislation by the bodies whose privileges have been overridden, who will thus be indisposed to grant such legislation, and who will be amply justified in refusing to sanction so evil a precedent. Besides

this, there is the objection that a treaty is framed for a definite term of years, and is unalterable even though its provisions should be found by either party to be unwise in their details.

To remove these sources of opposition to the measure, a bill, containing nearly the same provisions as the treaty, was introduced in the House of Representatives last winter by the Hon. W. D. Kelley, of Pennsylvania. It is, however, more comprehensive in its scope than the treaty, inasmuch as it enables the authors of all countries which grant reciprocal privileges to American authors, to obtain the advantages of copyright here, and is thus not limited to England. At the meeting of the International Literary Congress, at Vienna, in September last, where International Copyright formed the leading topic of discussion, the view was prominently urged that copyright ought not to be the subject of international conventions, which might be terminated at any moment by war, but that each country should legislate for the benefit of foreign as well as of native authors. This view, which is carried out by Mr. Kelley's measure, was not pressed to action, for the purpose of not interfering with the proposed Anglo-American convention, the success of which was regarded by Congress as more certain than we think it likely to prove. The French and German delegates to the Congress, moreover, were loud in their demands that any convention between the United States and Great Britain should be followed by others with their respective countries. These demands are likewise met by Mr. Kelley's bill, which would place it in the power of all foreign governments to give their citizens the benefit of American copyright.

As in the recent organization of Congress, Mr. Kelley has been placed at the head of the Committee on Ways and Means, and is thus made one of the leaders of the House, there would appear to be a better prospect than ever before of accomplishing some practical legislation on this subject. In this, we would call upon our readers to assist. There is no profession more influential than the medical, when it chooses to make itself heard; and if all its members who feel an interest in this question would correspond with their members of Congress, they could do much to overcome what is really the great obstacle to action—the lack of interest felt in the matter by many members of Congress, and the pressure of business which renders it so difficult to get any measure fairly before the House for discussion.

THE LAW OF INSANITY.

THE act recently introduced into Congress by Mr. Springer, and said to have been drawn by David Dudley Field, is intended to define insanity in criminal cases, occurring within the jurisdiction

of the United States. The ability to distinguish between right and wrong has always been held by lawyers as the proper test of responsibility for those mentally unsound. In the proposed law, that "defect of reason" necessary to constitute irresponsibility, consists, "first, not to know the nature and quality of the act he was doing; or, second, not to know the act was unlawful or wrong." In other words, an imbecile who cannot appreciate the nature of the criminal act he commits, or an insane man who cannot discriminate between right and wrong, are equally held irresponsible before the law. This definition will not be assented to by alienists, who have always maintained that the conception of criminal responsibility by lawyers was much too sweeping, and included an important group of cases which ought to be exempt.

To illustrate—there are those who suffer from delusions of hearing, insane who hear voices, and receive commands from God to do acts in contravention of the laws which they know to be wrong, but which they take a delight in doing, because acting under superior power. According to the terms of the proposed act, such an intellectually insane person would be held amenable. It may be said, however, that such insane are peculiarly dangerous, and that as their existence is a constant menace to society, they should suffer the penalty for their acts. The restraint provided for in the last section, namely, confinement in an asylum, more humanely disposes of such cases. It may be admitted that, in general, the legal test will more surely include the criminal. If any latitude of construction is permitted, the door is open to every loose definition, and the impulse to commit a crime, as in the case of Guiteau, comes to be held as an insane impulse which overthrew the reason. The manner of Guiteau's "inspiration" is very different from those delusions, in which the insane man hears a voice which compels him to obey. Guiteau's "pressure" is the conception which an ignorant lawyer would be likely to form of that kind of delusion which forces some insane to commit terrible crimes. In the case of the really insane, the act follows quickly on hearing the command; the obedience is immediate and unquestioning, because the command is clearly heard and is imperative.

SPONGE-GRAFTING.

A SUBJECT of both practical and pathological interest, to which attention is called in the *Edinburgh Medical Journal* for November, 1881, by Dr. D. H. Hamilton, the accomplished pathologist to the Edinburgh Royal Infirmary, is that of promoting the cicatrization of large ulcers and surgical wounds, by accurately fitting a piece of sponge into the deficiency, which, like a layer of fibrinous lymph or a

clot of blood, forms a passive porous agent for the building up of a mass of cicatricial tissue. His method, and the result obtained, will be best understood by the following abstract of the first experiment:

A circular ulcer of the leg, which was five inches in diameter, and from half an inch to three-quarters of an inch deep, and the floor of which was still the seat of a small slough of connective tissue, was filled with one large piece and several small pieces of decalcified and carbolyzed very fine sponge, over which were retained a bit of protective and lint, soaked in a one-to-twenty solution of carbolic acid in glycerin. As there was marked putrefactive odor at the expiration of forty-eight hours, the wound was irrigated with a one-to-forty carbolic solution, and this was continued throughout the progress of the experiment. On the third day the sponge was found to be adhering to the granulating surface; on the fifth day its interstices were filling with germinal tissue, and its edges seemed to be dissolving as it became infiltrated by the new tissue; and from this time onwards, the reparative material continued to grow into the sponge. As soon as its framework was filled, epithelium spread over it; and, at the expiration of five months from the commencement of the experiment, it had entirely vanished, and there was merely a superficial, healthy, granulating surface, an inch and a half in diameter. Hence, in this case, despite the fact that the wound was in a putrescent condition, the sponge, like a blood-clot, became filled with embryonal tissue and bloodvessels, which grew into it from the edges and bottom of the ulcer, and which ultimately caused the sponge to disappear, leaving an organizing mass, out of which the gap was reconstructed.

In the remaining experiments, which were conducted upon ulcers and the large wound left by the amputation of the female breast, the process of healing was equally slow, and this seems to be the only objection that can be urged against the general adoption of the method. On the other hand, it possesses the great advantage of furnishing a non-contractile cicatrix, so that it may be resorted to for the healing of large deficiencies in which a soft and pliant new tissue is deemed desirable.

The conditions essential to the successful performance of sponge-grafting may be summarized as follows:

First. The sponge should be very fine and porous, and be decalcified by immersion in dilute nitro-hydrochloric acid, the excess of the acid being subsequently removed by washing in solution of potassa, and then be rendered antiseptic by steeping it in a five per cent. solution of carbolic acid.

Secondly. The antiseptic sponge should be made to fit the wound very accurately, and should rise a

little higher than the level of the skin. It should be kept aseptic throughout the treatment, or at any rate until it is entirely replaced by a healthy granulating tissue, by a piece of protective, and a one-to-twenty solution of carbolic acid and glycerin. If at any time there is a distinct putrefactive odor, the wound should be irrigated with a two-and-a-half per cent. solution of carbolic acid.

Thirdly. The wound itself, at the outset, should be in a healthy condition, although the presence of a certain amount of foul slough is not a bar to success, as we have seen in the abstract of the first experiment.

Dr. Hamilton thinks that a solid framework for the formation of new bone after operations for necrosis may be found in charcoal or calcined bone. In view of the startling results obtained by the insertion of sponge amid living tissues, which tend to overthrow the old theory of the pernicious action of all foreign bodies when retained in wounds, the suggestion is worthy of adoption, and we trust that we may soon hear that it has been submitted to practical tests by hospital surgeons.

THE UTILITY OF THE SALICYLATES IN RHEUMATISM.

MUCH discussion, during the month of last December, was had in England as to the real value of the salicyl compounds in acute rheumatism. In the *Lancet* for December 31, 1881, we find a report based on twelve hundred cases of this disease treated in Guy's Hospital by different physicians and by various plans of treatment. Such a large number of cases, treated under precisely the same conditions, offer peculiar advantages for determining the relative value of the different plans of medication. As a result of the analysis, it appears that those patients taking salicylates lose their pains more quickly than those who are not taking this remedy. "Out of 350 cases collected by Dr. Fagge who were treated with salicylates, 288 lost their pains within the first nine days of treatment. Of a series of 350 cases collected by Dr. Hood, and treated with salicylates, 247 lost their pains in the same time. Of 350 cases not treated with this remedy, only 141 lost their pains within nine days. It appears, however, that relapses among patients taking salicylates are "vastly increased," and that, although "patients soon lose their pains, they are left feeble and exhausted after the use of this remedy."

Not less important than the pains and the duration of the disease is the question of cardiac complication. The results of the treatment of 1200 cases are given. In the words of the report: "We find that among the 350 patients treated by the salicylates, 241 suffered from heart affection of some kind or other; among the 350 treated without the salicylates, 227 suffered from this complication; of the 500 with-

out salicylates, 273 were affected. The proportion between the two classes is much the same, but what little advantage there is does not lie on the side of the salicylic treatment."

These facts are at variance with the statements of MacLagan, who maintains that the salicyl compounds destroy the *materies morbi* of rheumatism, and thus prevent the cardiac complications.

CONSULTATIONS WITH HOMŒOPATHIC PRACTITIONERS.

At the last meeting of the British Medical Association, at Ryde, England, in the surgical address by Mr. Jonathan Hutchinson, and in the medical address by Dr. Bristowe, there were scarcely concealed suggestions of the advisability of yielding the position of the medical profession on the matter of consulting with homœopathic practitioners. The effort, although not a concerted one, excited quite a storm of indignation throughout England. It is evident that some of the London consultants would gladly take in the guineas which might come to them by such consultations. The death-blow to such aspirations, and to some other questionable professional practices, has just been given by a resolution passed by the Royal College of Physicians, in which the fellows, members, and licentiates, are informed that they are expected to uphold their principles by discountenancing all those who "trade" on some "special designation." A similar disposition to countenance irregular modes of practice has been observed in some prominent localities on this side of the Atlantic, but the heresy has not, however, gained many advocates in the regular medical profession of this country.

NOCTURNAL INCONTINENCE OF URINE IN CHILDREN.

Few practitioners escape the care of frequent cases of children's nocturnal incontinence. It is one of the least dangerous, but at the same time one of the most annoying and persistent disorders of childhood, and any help we may get of a practical sort, especially in the way of prevention, will be welcome to our readers. A recent paper read before the Harveian Society, by Dr. Tom Robinson, has two homely hints that are of value, and to which we desire to call attention. "There is no doubt," he says, "that nurses and mothers are frequently to blame for this troublesome vice. Young children ought to be taken out of bed during the night and placed on a chamber, so as to excite their bladders to act." And again, "Fear will frequently prevent young people from rising in the dark to relieve themselves." If we instruct our patients to take up their children when they go to bed themselves, we shall do much, even in quite young children, to arrest the natural

incontinence of infancy. And no parent should allow children to sleep without a dim but sufficient light, not only that they may readily find the chamber, or the water-closet, but that in case of fire or sudden illness darkness may not add its unknown terrors as a hindrance to their seeking aid, or the means of escape. If they sleep at a distance, or in different stories, the halls also should be lighted.

INJURY TO THE EYES CAUSED BY THE ELECTRIC LIGHT.

As evil effects have followed protracted exposure of the eyes to the electric light, this fact should be known to our readers. Dr. Nodier, of Paris, relates that two officers of the French Navy, engaged about the light on a vessel, were compelled to have their eyes turned on the electric arc for two hours, and suffered in consequence serious visual disorders—conjunctivitis, iritis, and retinitis. It seems necessary for those who are compelled to keep their eyes on the point of light, to protect them by colored glasses. A yellow tint, experience has shown, is better than blue or black, for the reason that yellow arrests more perfectly the chemical rays—the violet and beyond.

On the other hand, it is asserted that the electric light is not only free from injurious effect, but it actually prevents the evil results produced by exerting the visual power in an uncertain light. Both propositions are, probably, true; the eyes are injured by keeping them on the electric arc, but benefited by the superior illumination of dark places or objects.

"MATRICULANT."

WE notice in some of our exchanges, and especially in the announcements of some of the medical colleges, the use of the word "matriculant." As the season is upon us for such annual lists, no better time, perhaps, can be found than the present to call attention to the fact that there is no such word in the English language. The proper word is "matriculate," and is derived from the Latin "*matricula*," a register or roll. There is no such verb as *matriculo*, and, therefore, no participial noun as "matriculant."

THE EYE REFLEXES IN ANÆSTHESIA FROM CHLOROFORM.

It has long been known that the abolition of the conjunctival reflex is a proof of complete insensibility during the inhalation of anæsthetics. M. Berger proposes to utilize this fact in the course of chloroform inhalations, for determining the necessity for giving or withholding the anæsthetic. The first sign indicating the return out of insensibility after the abolition of the conjunctival or corneal reflex, is a fibrillary contraction of the orbicular muscle of the lower lid, which appears on touching the cornea or conjunctiva.

REVIEWS.

THE PREVENTION OF STRICTURE AND OF PROSTATIC OBSTRUCTION. By REGINALD HARRISON, F.R.C.S. 8vo. pp. 28. London: J. & A. Churchill, 1881.

In this little brochure Mr. Harrison reproduces a paper on the *Prevention of Stricture*, which originally appeared in the *Lancet* of May 15, 1880, and couples with it an article on the *Prevention of Prostatic Obstruction*. In reference to the former subject he claims that a large majority of strictures, excepting those caused by injuries to the urethra, are preceded by more or less chronic gonorrhœa or gleet, and that the most frequent seat of gleet corresponds with that of stricture, namely, the subpubic or deeper portion of the urethra. Holding that gleet is an evidence that stricture will form and not that it has already formed, he deprecates the violent, and especially the instrumental, treatment frequently employed, and attributes those cases of persistent and obstinate urethral discharge, which every surgeon continually meets, to the imperfect means hitherto adopted for dealing with the bulbous and membranous portions of chronically-inflamed urethra. He then describes an apparatus, which he says he has employed in such cases with much benefit, and which consists essentially of a soft catheter and a small Higginson's syringe, by means of which he "douches" or "irrigates" the urethra with medicated solutions. He claims that in this manner chronic urethral discharges are most readily cured, and that thereby stricture is in many cases prevented.

As regards the treatment of prostatic obstruction, he asserts that catheterism should be commenced upon the first indication of the prostate enlarging, and should be employed daily, or even oftener, with a view of keeping open a direct channel to the bladder, or, as he expresses it, of "moulding" the growth so as to prevent interference with the mechanism of micturition.

He gives one case in which—the patient dying from other causes—a post-mortem disclosed the fact that the enlarged middle lobe of the prostate had been grooved or almost bisected, apparently by persistent catheterism.

These views as to the effects of treatment require much stronger confirmatory evidence than is here given before they can be adopted or even be seriously considered by the majority of the profession.

AIDS TO RATIONAL THERAPEUTICS. By J. MILNER FOTHERGILL, M.D., M.R.C.P. 16mo, pp. 121. New York: G. P. Putnam's Sons, 1882.

In the words of the preface, this work is intended to be useful to the student when first called upon to prescribe for patients. It is one of the "Students' Aid Series." These primers are supposed to facilitate the progress of the student; but it may be well questioned if they do not obstruct rather than aid. The present one supposes some considerable acquaintance with the subject of therapeutics, and officiously offers help to those who do not need it. The kind of help is more than questionable; it is scant, superficial, dogmatic, the principles of doubtful authority, and the pharmacology mixed and inconsequential.

The prescriptions are bulky, disagreeable, and complex. The author delights it in polypharmacy. Forgetting that there is usually one central point of disturbance, he seeks by a multiplicity of agents to oppose various symptoms. For example, in debility, he recommends: *R. Tinct. digitalis, ℥x; tinct. ferri mur., ℥x; sp. chloroformi, ℥xx; inf. quassia, ℥i.*—Ter in

die. It is difficult to conceive of a more disagreeable mixture, and this quantity, more than two tablespoonfuls, to be given three times a day. Here is another prescription to promote digestion: *R. Sod. sulphat.*, 3ss.; *acid. n. mur. dil.*, $\mathfrak{m}\mathfrak{v}\mathfrak{j}$.; *inf. gent.*, 3i. This is also to be given before each meal. The following is a tonic pill: *R. Strychnia*, gr. i.; *fer. sulph. exsic.*, 3ss.; *pulv. pip. nig.*, 3i.; *pil. al. et myrrh.*, 3ij.—Mft. in *pil.* 36 div. He recommends iron with a mineral purgative, thus: *R. Mag. sulph.*, 5j.; *cit. fer. et quinia*, gr. v.; *inf. quassia*, 3j.—Ter in die. In "elderly persons something of this kind is to be preferred." *R. Amm. carb.*, gr. iv.; *sp. chloroform*, $\mathfrak{m}\mathfrak{x}\mathfrak{x}$.; *tinct. nuc. vom.*, $\mathfrak{m}\mathfrak{x}$.; *inf. cascarrilla*, 3j.—Ter in die. In "chronic dilatation of the heart," he gives the following pill: *R. Strychnia*, gr. ij.; *pulv. digital.*, 3ss.; *fer. sulph. exsic.*, 3ss.; *pulv. pip. nig.*, 3j.; *pil. al. et myrrh.*, 3ss.—M. ft. in *pil.* 60 div.; i bis in die. In this pill the patient receives $\frac{1}{4}$ gr. of the alkaloid, strychnia, daily.

The primer is full of these specimens. Those given are quoted literally, the abbreviations being those of the author. In a small space is crowded much ill-directed and unwise pharmacology. The evil done is remote as well as direct. Students fancy they have in such a work the whole science and art of therapeutics, and are delighted with the ease with which diseases are treated. Why labor over ponderous tomes, when, in the delightful pages of Fothergill, the whole matter is comprehended in the dimensions of a primer.

COMMON MIND TROUBLES. By J. MORTIMER-GRANVILLE, M.D., M.R.C.S. Edited, with additions, by an American physician. 12mo, pp. 185. Philadelphia: D. G. Brinton, 1880.

This little work consists of two parts. Part I. treats of "Common Mind Troubles," in chapters devoted to "Failings," "Defects of Memory," "Confusions of Thought," "Hesitation and Errors of Speech," "Low Spirits," "Temper—Good and Bad," and "Creatures of Circumstances." To these the American editor adds papers on "Mental Languor and Listlessness," and "Morbid Fear." The editor has so successfully imitated the graceful and flowing style of the author, that his contributions read like those of the original work.

In the second part, under the general title—"The Secret of a Clear Head," are papers on "Temperature," "Habit," "Time," "Pleasure," "Self-importance," "Consistency," "Simplicity," and "The Secret of a Clear Head." The editor has made no additions to this part of the work. Some of the essays are concerned with the highest questions of morals, of mental physiology and hygiene, and of sociology, but they are discussed in a lucid, familiar, but dignified style, and may be read with profit by physicians, although intended for general readers. The book is cheaply constructed, the type worn, the paper inferior, but it is nevertheless legible.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 19, 1882.

FORDYCE BARKER, M.D., PRESIDENT, IN THE CHAIR.

After various reports by officers of the Academy had been made and acted upon, the President introduced Dr. S. W. GROSS, of Philadelphia, who proceeded to read the paper of the evening, entitled:

The Influence of Operations upon the Prolongation of Life and Permanent Recovery in Carcinoma of the Breast. (See MEDICAL NEWS, January 21, 1882, page 64.)

Dr. GEO. A. PETERS being called upon by the chair to open the discussion, remarked, that when he began his surgical practice, which now dated back more than thirty years, he was taught that it was hardly worth while to meddle with carcinoma of the breast, for it was sure to return, and that operation rather hastened than retarded death. He had early failed to see the force of that teaching; he had operated many times, and his experience had been much the same as that of Dr. Gross. He could recall at the present time, three cases of successful operation. One was that of a lady between forty-five and fifty years of age, upon whom he had operated for carcinoma some sixteen or eighteen years ago. She was still alive and free from any recurrence of the disease. He had operated as Dr. Gross recommended, removing with the tumor the covering of the pectoral muscle as well as dissecting away some portion of the muscle. The axilla was also opened, and infected glands removed. The second case was that of a young woman, thirty years of age, from whom he removed the entire gland more than ten years ago. The axilla was not opened, as there were no evidences of its contamination. The patient was still alive and enjoyed good health. In the third case, operated on more than ten years ago, the axilla was opened and contaminated glands removed. The covering of the pectoral muscle was also dissected off. The patient was still enjoying good health.

Dr. ROBERT F. WEIR was next called upon by the chair, and responded by saying that he had been much impressed with the great mortality (over 17 per cent.) as recorded by the author of the paper. This was much greater than was common in New York. He had operated some sixty or seventy times, and had had only one death, which was due to erysipelas. Since the advent of Listerism in 1875, we operated more boldly, and, as a result, our patients had fewer relapses than in previous times. He thought operation was to be advocated more as a means of prolonging life than as a means of permanent cure. He cited cases to show that patients might be free from the disease for sixteen or seventeen years, or even more, after which the disease would recur.

Dr. THOMAS E. SATTERTHWAITHE remarked that during the past ten years he had collected a number of cases of carcinoma, and had been to some pains to have those patients, still struggling along, called upon at their homes and examined. In June last he had collected 36 cases, many of them being known to physicians present. Of the three forms of cancer of the breast—scirrhous, encephaloid, and colloid—80 per cent. of the cases collected by him were scirrhous. Traumatism, as a cause, was associated in about a third of the cases. About one-half of these, or one-sixth of the whole number, had a hereditary taint of cancer. In New York, the deaths from operation did not amount to 3 per cent., between the time of operation and the eighth day. Of 31 cases of which he had complete records, and had himself made the microscopical examinations, 3 might be classed as cured, which gave a percentage of 10. In these cases there had been immunity from disease, six, seven, and ten years, respectively. In reference to the question as to whether early operation secured better results, he had twice attempted its solution, but was still in doubt. In two of the three cases of cure above alluded to, the operation was done early, four and six months, respectively; but in the third case the operation was performed after an interval of five years. An explanation might be found in the view that in cases where long intervals elapsed before operation, the tumor remained benign for several, or many years and then became malignant.

The PRESIDENT said that some ten or more years ago, when the senior ex-president of the Academy, Dr.

Willard Parker, read a very interesting paper on this subject, he (Dr. Barker) had called attention to an observation he had made, viz., the older the patient at the time of the operation, the less likely or less early would be the disease to return, and *vice versa*.

Dr. LEWIS A. SAYRE remarked that he had been taught, as Dr. Peters had been, that when cancer of the breast was diagnosed, to let it alone. That operation hastened the death of the patient. That operation was to cancer what hoeing was to a hill of corn; the more it was hoed the better it grew. For twenty or thirty years he had been in the habit of removing all cancerous breasts that came under his treatment, that were not so far advanced as to preclude operation. Since Dr. Atlee, in a paper read before the American Medical Association, about the year 1847, had detailed the beneficial results derived from the internal administrations of arsenic in cancer, it had been his custom to give it in all cases, and he must say the results had been gratifying. Some of his patients operated on over twenty years ago were still alive and in good health.

Dr. FRANK HASTINGS HAMILTON said he regarded the pivotal point of this discussion to be, whether the disease was primarily a local, or a constitutional malady. He had observed that cancer of the breast occurred at a time of life when that organ was going into decay, and especially in those who had never borne children. In this fact there was no evidence of constitutional fault, as all other parts of the body were in good condition. We all know how epithelioma might arise from traumatism, or long-continued local irritation. In the history of such cases there was a time when the disease was purely local.

Dr. ALFRED C. POST had always been in favor of the removal of cancers of the breast, and his practice had been in accordance with this view. His results had been very satisfactory on the whole. The fact to which the President had called attention he had long observed.

Dr. WILLARD PARKER said he had collected the histories of between four and five hundred cases of cancer of the breast which had come under his own observation, either as patients or in consultation. When he undertook the review of these histories he was of the opinion and taught that cancer of the breast was of hereditary origin. As a result of his tabulations he came upon the conclusion unequivocally that it was not hereditary. He believed traumatism to be the exciting cause in most cases.

Dr. AUSTIN FLINT, Sr., moved that a vote of thanks be tendered to Dr. GROSS by the Academy of Medicine for his valuable paper, which was adopted, and the Academy then adjourned.

MICHIGAN STATE BOARD OF HEALTH.

Stated Quarterly Meeting, January 10, 1882.

The regular quarterly meeting of this Board was held January 10, 1882, in Lansing, the full Board being present.

The SECRETARY presented his quarterly report, showing some of the work in the office during the past quarter. The quarter had been a very busy one, made so, in part, by the numerous outbreaks of diphtheria, scarlet fever, and small-pox in the State, which had required much correspondence and the sending out of many documents. The compilation and issuing of the weekly bulletin of health in the State is now so systematized as not to take as much time as at first. It is published in probably two hundred newspapers in Michigan. In response to a request, fifty-seven health officers of villages have begun to make weekly reports of disease. The Board re-

affirmed the demand for these reports from health officers of cities. To each place in the State where diphtheria, scarlet fever, or small-pox was reported present, a letter was written to the health authorities giving full instructions and suggestions how to prevent the spread of the disease. Documents containing elaborate and particular directions have been sent for free distribution throughout the vicinity. Each officer was requested to make a special report on the epidemic under his care, and some of the reports show how, by determined action, to stamp out a contagious disease. As showing the necessity for inspection and disinfection of immigrants, their clothing, baggage, etc., and especially for a system of surveillance to their destinations, a statement was made by the Secretary of the introduction of typhus fever in Benzie County, by Norwegian immigrants. The disease made its appearance over sixty days after the arrival of the immigrants, and spread quite freely (not being reported at the time or treated as, a contagious disease by the local authorities), causing many cases of illness, and at least three deaths. The importance of inspection of immigrants at Port Huron, and of keeping those believed to be liable to spread communicable diseases under surveillance until their destination is reached, and then placing them in the watchful care of the local Board of Health, was freely discussed. As this Board has no funds available for such a purpose, the subject was referred to the President, Secretary, and Dr. Lyster, to confer with the National Board of Health, and take such action as is possible.

A report by the Hon. LE ROY PARKER, relative to duties of health officers in verifying diagnoses of contagious diseases, was read and ordered printed in the Annual Report. Mr. Parker reported the following: In Gaines Township, Genesee County, a child of Mr. B—s died of what the doctor called malarial fever, and did not report the case to the board of health, though it seems probable that it was really diphtheria. A neighbor and wife, Mr. and Mrs. B., assisted in preparing the corpse for burial. About the same time a child of Mr. S. died from "sore throat," not reported as "dangerous to the public health," and some of the children of Mr. B. attended the funeral. Soon after, Mrs. B. was taken sick with diphtheria, and in turn 13 out of 14 members of the family had it, and 7 out of 10 children died. The Board of Health promptly isolated this household, but the attending physician's error in diagnosis, or failure to report the first case, was fatal to the hopes of that family. In this connection the Board adopted the following preamble and resolutions:

Whereas, It is often difficult to recognize mild cases of diphtheria, or to distinguish such cases from a simple pharyngitis or laryngitis, and

Whereas, Such mild cases of diphtheria often communicate a dangerous and fatal form of diphtheria,

Resolved, That it is the duty of physicians and householders in reporting diseases dangerous to the public health, and of local health authorities in their efforts to restrict such diseases, in every case to give the public safety the benefit of the doubt.

Resolved, That suspected cases of dangerous diseases should be reported, and precautionary measures should be taken.

Drs. Kellogg and Avery were appointed a special committee to report on the present knowledge of diphtheria, and Dr. Lyster was appointed a special committee to report upon the present knowledge of typhoid fever.

Mr. PARKER reported that persons guilty of removing contagious-disease placards from their houses, could be punished under the law, which made the house in which the contagious disease was, a hospital, if declared so by the Board of Health, and subject to their rules and regulations. All rules and regulations of a Board must

first be published, then penalties may be inflicted for any violations.

Dr. AVERY, as special committee on the subject, made a report relative to the overflowed lands in Gratiot and Clinton Counties, and presented a resolution from the Board of Supervisors of Gratiot County. In accordance with the report, the Board adopted a preamble and resolution as follows:

Whereas, The Board of Supervisors of Gratiot County has passed resolutions asking this State Board of Health to investigate the subject of the sickness caused by the overflow of Maple River, because of the dam at Maple Rapids, and "to advise the removal of said dam as being detrimental to the health of the communities living in the vicinity of said river," therefore,

Resolved, That the Board of Supervisors of Gratiot County be informed that this Board has already had an investigation made, and from the report of such investigation, is convinced that the dam at Maple Rapids causes a nuisance, and advises that in case the owner of said dam will not remove the same, and thus abate the nuisance caused by the overflowing of land along said river, a bill in equity should be filed against the owner of said dam, to compel him to remove the same.

The Secretary was directed to correspond with persons in some cities in the western part of the State, relative to holding a second Sanitary Convention this winter. One will be held at Ann Arbor, February 28, and March 1. These conventions are held in accordance with invitations received from citizens, and under arrangements made by a local committee acting with a committee of this Board.

Dr. HAZLEWOOD reported on the inspection of summer-resort hotels as regards danger from fire, and asked if the present law providing for such inspection was not sufficient. Dr. Baker thought the law should be amended so as to take the inspection duties away from the political officers, and place them among the duties of local Boards of Health. The question was referred to Mr. Parker, committee on legislation, in the interest of health.

The SECRETARY presented a report of work of local boards of health, showing much good work done during the past season in the restriction of contagious diseases. He read letters showing the action of local boards of health with contagious diseases: one from J. R. Thomas, M.D., Health Officer of Bay City, relative to diphtheria; one from W. G. Elliott, M.D., Health Officer of Pontiac, relative to scarlet fever; and one from Foster Pratt, M.D., Health Officer of Kalamazoo, relative to small-pox.

The SECRETARY also read a résumé of work of other State Boards of Health, and it showed that typhoid fever was very widely prevalent; that small-pox was very prevalent in the northern and northwestern States, and that intermittent fever was present in Connecticut, Massachusetts, and Rhode Island.

The next regular quarterly meeting of the Board will be held April 11, 1882. There will probably be a special meeting of the Board in connection with the Sanitary Convention at Ann Arbor, February 28, and March 1, 1882.

CORRESPONDENCE.

HYPERMETROPIA IN THE PUBLIC-SCHOOL CHILDREN.

To the Editor of THE MEDICAL NEWS:

SIR: Will you kindly allow me to correct an error through your columns on a subject which is of interest to many besides myself, and which, if uncorrected, might lead to an erroneous impression. In the report on *Weak Eyes in the Public Schools of Philadelphia*,

just published, Dr. S. D. Risley observes: "In the statistics compiled by Drs. Loring and Derby, of New York City, there was but twenty-seven per cent. of myopia in the highest class. Another marked difference is shown in comparing their tables with those of European observers. All the foreign statistics, except those of Conrad, show, expressed in general terms, a low percentage of emmetropic eyes, and a high percentage of hypermetropia." (p. 11.)

That "all foreign statistics, except those of Conrad," do not "show a high percentage of hypermetropia" will be seen from the following list, which a cursory glance over the literature has produced, and which I have no doubt could be extended if there was any occasion for it. The list gives the percentage of hypermetropia found by fifteen foreign observers:

	Per Cent.
Jaeger,	7.6
Cohn,	2.3
Thilenius,	2.9
Erismann,	43.3
Malakoff,	3.0
Cohn,	7.0
Kruger,	17.7
Hoffmann,	26.6
Reuss,	20.5
Ritzmann,	5.7
Gayat,	6.8
Dor,	4.18
Conrad,	11.76
Pflüger,	44.
Becker,	12.

The percentage obtained by Dr. Derby and myself was 13.00 per cent. Out of the above fifteen observers ten get a lower. If we take the average of all the above observers, high and low, it amounts to but 14 per cent. Dr. Risley obtained 74 per cent.

So much for foreign statistics. Not only do the statistics published by Dr. Derby and myself agree in a marked manner with the average of the above European observers in regard to hypermetropia, but they also agree in an equally marked manner with that of the predecessors of Dr. Risley in this line of investigation in this country, to which he alludes in an incidental sort of a way as the "work of several Americans," these being Drs. Williams, Ayres, Webster, Cheatham, Agnew, Matthewson, Prout, Mittendorf, and others.

That the public schools of Philadelphia should contain *six times* as much hypermetropia as do the schools of New York, as determined by half a dozen different examiners at different periods is certainly a curious fact, if it be one, and all the more curious as the same methods were adopted, and the same precautions taken in the compilation made by Dr. Derby and myself, as in that made by Dr. Risley.

Respectfully yours,

EDWARD G. LORING, M.D.

New York, January 19, 1882.

NEWS ITEMS.

NEW YORK.

(From our Special Correspondent.)

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.—An interesting paper was read at the December meeting of this Society by Dr. H. H. Kane, of this city, upon the use of opium as a remedial agent. The early part of his paper was devoted to a sketch of the use of opium as a stimulant by presumably healthy persons, and to illustrate the usual manner of using it, a complete opium-smoking bunk, smokers included, was introduced. While admitting the capacity of the drug

to work mischief, the reader believed that the effects of opium smoking were greatly exaggerated, and by contrast with the effects of alcohol, were, comparatively speaking, slight.

As a remedial agent, notably in cases of tuberculosis and other wasting diseases, the results seemed to be merely temporary, the progress of the disease being checked during the administration of the drug, to resume its activity when the use of the opium was abandoned. Hence its action seemed to be rather in the direction of checking metamorphosis of tissue than that of a true curative agent.

A NEW MEDICAL PUBLICATION.—It is said that a new journal, the first number of which will be issued in February, is to be published in this city, which, if carried out as proposed, cannot fail to be of great interest to the medical public. Its title is the *Illustrated Quarterly of Medicine and Surgery*, and its publisher is E. B. Treat, the same who brought out Dr. Fox's admirable *Photographic Illustrations of Skin Diseases and Cutaneous Syphilis*. Four numbers will be issued during the year, each number to consist of four plates, chromolithographs, autotypes, or fine wood-cuts, illustrative of various diseases in medicine, surgery, and pathological anatomy. Accompanying each plate will be the history of the case depicted, besides short practical articles, illustrated by wood-cuts in the text, from the pens of eminent men in the profession. The editors are two physicians, who are connected as teachers with two prominent New York medical schools.

ENFORCEMENT OF THE MEDICAL LAW.—This work still goes on actively, the Medical Society of the County seeming to be as diligent as ever in the pursuit of "irregular practitioners." One hopeful feature, is that most of them after being prosecuted once, do not feel disposed to try it over, although here and there cases occur, but the censors of the Society watch such persons closely, and rearrest them as soon as sufficient evidence can be obtained. One such case is already on trial, the man Cox (alluded to in a former communication), has been caught illegally practising a second time, notwithstanding his former conviction. The penalty for subsequent offences, the law declares, shall be "a fine of not less than one hundred dollars, nor more than five hundred dollars, or by imprisonment for not less than thirty nor more than ninety days, or both;" and this latter sentence, "or both," *i. e.*, fine and imprisonment, the censors mean to try to secure.

Another salutary feature, in the opinion of the County Society, is the necessity of endorsing diplomas which are issued outside of the State, and this section of the Pennsylvania law, which is objected to by the Philadelphia medical schools, on the ground that "they regard it as offensive and unjust for the faculty of a medical school in this State to sit in judgment on the qualifications of a medical man, attested by the signatures of a faculty in good standing in another State," is here thought to be a wise and good provision.

EDINBURGH.

(From our Special Correspondent.)

EDINBURGH UNIVERSITY.—The large number of medical students during the present session is without parallel in the history of the university. In the year 1880 there were 1638 matriculations, or an increase of about 50 over the previous year, or, comparing it with the year 1875, an increase of more than 700. Probably, in no other medical school in the world has so large an attendance ever been recorded. The wide area from which the students are drawn, is also remarkable. During last year Scotland contributed 638, or about 38 per cent.; England, 585, or 35.7 per cent.; Ireland, 30,

or 1.8 per cent.; India, 120, or 7.3 per cent.; the colonies, 202, or 12.3 per cent.; and foreign countries, 63, or 3.8 per cent. The number of those who graduated is not so large as might have been anticipated from the number of students; only 35 took the degree of Doctor of Medicine (M.D.), and 133 the double degree of Bachelor of Medicine and Master in Surgery (M.B.C.M.), 4 taking the degree of Bachelor of Medicine (M.B.) alone.

EDINBURGH UNIVERSITY, CHAIR OF NATURAL HISTORY.—This chair, owing to the resignation of Sir Wyville Thomson, who is well known as the leader of the scientific expedition with H.M.S. "Challenger," is at present vacant. Sir Wyville suffered nearly two years ago from an attack of apoplexy, and, although he has sufficiently recovered to be able to superintend the investigations and publications which the voyage of the "Challenger" has entailed, he has not found himself equal to the discharge of his duties as professor of natural history in the university. The emoluments of the chair, which are mainly derived from students' fees, amount to little less than £2500 per annum, and thus constitute it much the wealthiest zoological appointment in Britain. The selection of a successor to Sir Wyville rests with the Crown, and it is understood that the chair has been practically offered to Prof. Huxley, of London, and afterwards to Dr. F. M. Balfour, Fellow of Cambridge University, whose excellent work on *Comparative Embryology* is recognized as the best contribution of recent years to the intricate subject of development. Both, it is stated, have declined to vacate their present posts. The candidates announced are Prof. Young, of Glasgow; Prof. Alleyne Nicholson, of St. Andrews; Prof. Cossar Ewart, of Aberdeen; Prof. Ray Lankester, of University College, London; Prof. Cunningham, of Belfast; Dr. Mackintosh, superintendent of Perth District Asylum and examiner in natural history in the university; and Mr. Geddes, lecturer on zoology in the Edinburgh extramural school. There is, therefore, no lack of able men, and it is to be hoped that the fittest will be chosen. The appointment, it is expected, will be made very soon.

PHILADELPHIA COUNTY MEDICAL SOCIETY.—At the annual meeting, held January 18, the following officers were elected to serve during the ensuing year: President, H. Y. Evans; Vice-Presidents, C. K. Mills, John B. Roberts; Recording Secretary, Henry Leffmann; Reporting Secretary, Frank Woodbury; Corresponding Secretary, H. Augustus Wilson; Assistant Secretary, J. D. Nash; Treasurer, Wm. M. Welch; Librarian, M. O'Hara.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.—At the annual meeting, the following office bearers were elected for the ensuing year: President, S. W. Gross; Vice-Presidents, Jas. Tyson, J. Solis Cohen, F. P. Henry, J. Ewing Mears; Secretary, S. F. Hazelhurst; Treasurer, M. S. French; Recorder, Chas. B. Nancrede; Curator, Carl Seiler.

BALTIMORE MEDICAL ASSOCIATION.—At the annual meeting of this Society, held on the 9th inst., the following officers were elected for the year 1882: President, Dr. Christopher Johnston; Vice-Presidents, Drs. W. F. A. Kemp and T. A. Ashby; Recording Secretary, Dr. Eugene F. Cordell.

HARVARD UNIVERSITY MEDICAL SCHOOL.—The cost of the new building now being erected at the corner of Boylston and Exeter Streets, Boston, for the use of the Medical department, will not be less than \$190,000. \$83,325 having been expended for the site, there remains

of the money collected for the building about \$190,000. Work was begun upon the building early in June last, and it is hoped that the whole building will be ready for occupation by the 1st of January, 1883.

Two scholarships, one of the annual value of \$300, and one of \$200, will be established in the Medical School, from a part of the bequest of the late Edward M. Barringer, of Schenectady. These scholarships are the first which have been endowed in the Medical School.

The whole number of students in attendance during the year was 251; of these 120 had a literary or scientific degree. There were 85 applicants for the degree of Doctor of Medicine, of whom 25 were rejected.

The fourth year course was composed of a class of 10 students, of whom 5 received hospital appointments, one the ordinary degree of M.D., and four applied for the special degree; but as none of them fulfilled all the requirements, this degree was not awarded.

Nine volumes were added to the Medical Library, making the total number of volumes 2009.

SAN FRANCISCO COUNTY MEDICAL SOCIETY.—At the annual meeting of this Society the following officers were elected to serve during the year 1882. President, Dr. Wm. H. Mays; Vice-Presidents, J. D. Wilson, M.D., and C. E. Blake, M.D., and Recording Secretary, W. H. A. Hodgdon, M.D.

THE SOCIETY OF PHYSICIANS AND SURGEONS OF ALAMEDA COUNTY was organized last October. Prof. S. H. Wythe was chosen President, and Dr. E. S. Barber Recording Secretary. The regular meetings will be held on the first and third Thursdays of every month; at the first meeting of every month papers will be read on some subject pertaining to medicine or surgery, and the second meeting will be devoted to reports of cases and discussions.

A SANITARY CONVENTION, under the auspices of the State Board of Health, will be held on February 28 and March 1 at Ann Arbor, Mich. Manufacturers of, and dealers in, all kinds of sanitary apparatus or appliances are invited to send specimens of their articles for exhibition at the Convention, and certificates of merit will be awarded to such articles as are deemed worthy.

Among the subjects to be presented and discussed are the following: (1) Ventilation; (2) Causes of Insanity; (3) Injuries to Health from Overflowed Lands and from Mill-dams and other Obstructions in Rivers; (4) Water Supply and Disposal of Waste Matter; (5) School Life and Hygiene.

HEALTH IN MICHIGAN.—The weekly Board of Health bulletin states that inflammation of bowels, typhoid fever, pneumonia, diphtheria, cerebro-spinal meningitis, erysipelas, measles, and small-pox increased considerably, and influenza and remittent fever have decreased considerably in area of prevalence.

Small-pox was reported at Bay City, Detroit, Grand Rapids, Marcellus (Cass County), and South Haven. New cases were reported at Grand Rapids, January 15. These five places were reported as having 19 cases from January 7 to January 15.

An epidemic of measles is reported at Albion, Jan. 17.

SMALL-POX.—We learn that during last week there were at New York thirty-nine cases of small-pox, and seven deaths, and at Brooklyn, thirteen. In Hudson County, New Jersey, the disease is thought to be abating, while at Hoboken it is on the increase. At Port Jervis the Board of Health has not succeeded in suppressing the disease; about sixty cases in all have been reported, with seven deaths. At Philadelphia there were twenty-three deaths; Pittsburg, twenty deaths; and

at Allegheny nineteen deaths. At Pittsburg fifty-six, and at Allegheny twenty-seven new cases were reported from January 21 to 23. There were reported to the National Board of Health, for the week ending January 21, at Boston, one new case and one death; at New Haven, four new cases; at Wilmington, Del., one death; at Cleveland, Ohio, one death; at East Liverpool, Ohio, twelve new cases; at Dayton, four new cases and one death; at Louisville, four new cases and one death; at St. Louis, fifteen new cases and two deaths; at Richmond, thirty-five new cases and two deaths; at Galveston, seven new cases.

THE PARIS MEDICAL SOCIETIES.—M. Dujardin-Beaumetz has just been elected President of the Société Médical des Hôpitaux; M. Léon Labbé, of the Société de Chirurgie; M. Duroziez, of the Société de Médecine.

DEATH UNDER CHLOROFORM AND ETHER.—The *Lancet* for Dec. 31, 1881, states that a patient in the week before died at the Great Northern Hospital whilst under the influence of a mixture of chloroform and ether, administered preparatory to the removal of the nail of the great toe. The anæsthetic was given on lint, and the operation was completed, when it was discovered that the pulse had ceased, and the patient succumbed in spite of every effort adopted to restore animation.

MEDICINE IN JAPAN.—According to the *Lancet*, December 24, 1881, Japan possesses 159 hospitals, in which the patients are treated on principles recognized by Western nations. Vaccination is performed gratuitously, and is compulsory. Moreover, a sort of Medical Act has been lately passed, by which persons without certificates are prohibited from practising medicine or surgery.

EXECUTION OF CRIMINALS BY ELECTRICITY.—A German exchange suggests the following method of procedure for the execution of criminals by electricity. In a dark chamber hung with black, and lighted by a single torch, there is a statue of Justice, with the balance and sword, and a seat, on which the criminal is fastened, connected with a powerful battery in the statue. No one is to be present but the judge, the jury, and necessary officers. The ceremony commences with the reading of the sentence; this terminated, the judge breaks his bâton and throws it on the scale of the balance, at the same time extinguishing the torch. The scale descends, the circuit is closed, and the criminal thrown into the other world.—*Journ. de Méd. de Paris*, Nov. 26, 1881.

The feasibility of the method has unfortunately been already unintentionally illustrated with the electric-light apparatus. The *British Medical Journal* for December 24, 1881, relates the death, in England, of a laborer, who received a fatal shock from accidentally touching an uninsulated wire which was conducting the current for sixteen Brush lights. A number of serious accidents have also been caused in this country from defective insulation, and we believe, in at least one instance, a fatal result (in Pittsburg) has followed.

RUPTURE OF THE BLADDER.—In the *Lancet* for Dec. 10, 1881, Dr. J. T. Call publishes an account of a remarkable case of rupture of the bladder into the rectum, with no consequent infiltration of the cellular tissue with urine, and in which recovery occurred spontaneously.

DANGER IN ETHER INHALATION.—In the *Nashville Journal of Medicine and Surgery* (Dec. 1880), an accident, which narrowly escaped being very serious, is re-

ported to have occurred while anæsthetizing a patient with ether. A tumor was being removed from the parotid region under carbolic spray, when the flame of the spirit-lamp of the atomizer communicated with the ether and the vapor and clothing of the patient instantly caught fire. Fortunately, the flames were extinguished before any injury was inflicted.

POISONING BY WINSLOW'S SOOTHING SYRUP.—In the *Sanitary News*, December 15, 1881, there is a report of another death of a child eight months old, from the administration of a teaspoonful of "Mrs. Winslow's Soothing Syrup," the symptoms of poisoning by morphia being well marked. Analyses of this dangerous nostrum have shown that each ounce of the syrup contains *one grain* of morphia, so the dose, according to the directions on the bottle, for a child eight months old, contained *one-eighth* of a grain of morphia. It is about time that legal proceedings should prohibit the sale of such dangerous compounds, when advertised as inoffensive.

BACILLUS MALARIE.—Dr. C. A. MacMunn states in the *British Medical Journal*, for December 10, 1881, that an examination of a drop of blood taken during a chill, from a patient who had contracted malarial fever in Africa, showed most distinctly the presence of the malarial bacillus.

PASSAGE OF AN ARTIFICIAL TOOTH PLATE.—Dr. Frederick F. Palmer gives an account in the *Lancet* for December 10, 1881, of an instance in which a gold plate with two artificial teeth, and having a sharp projecting hook, was accidentally swallowed, and passed through the alimentary canal without doing any injury, and with an almost entire absence of pain.

EFFECTS OF THE ELECTRIC LIGHT ON THE EYESIGHT.—M. Nodier mentions in the *Revue Scientifique*, December 10, 1881, the instance of two naval officers, who, after some experiments with the electric light, were attacked with quite serious visual troubles; there was marked photophobia, slight conjunctivitis, lacrymation, contraction of the iris, and flying spots in the eyes.

THE MAN WITH THE ELASTIC SKIN.—The *Wiener Med. Wochenschrift* states that a man is now exhibiting in that city a peculiarity highly interesting to medical men. This consists in an enormous and astonishing elasticity of his skin. He is able to raise this in folds from his trunk or limbs to the extent of more than a foot; and as soon as the traction ceases the skin resumes its normal position, neither folds nor depressions being visible. The procedure is entirely painless. When the skin is touched it imparts a sensation as if one had hold of a fine sponge, and as if it were much too large for what it covers. Even the hairy scalp and the skin of the nose and palm of the hand exhibit the peculiarity, but to a less extent than that of the trunk or arm. So delicate is the skin, and especially of the upper extremities, that when it is raised in a fold and held before a light, it is found to be transparent, exhibiting the course of the vessels. The "India-rubber" man is thirty-two years of age, and the peculiarity was first observed in his twenty-first year.—*Med. Times and Gazette*, Dec. 3, 1881.

DOUBLE MONSTROSITY.—Dr. Joseph Stedman reports an interesting case of a double monster, twins united by the chest and belly (thoracopagus), having a cord carrying two arteries and two veins, the ductus venosus entirely wanting, the auricular portions of the heart united into a common cavity, with no right auriculo-ventricular opening in the case of fœtus B, and in con-

sequence the lungs receiving their blood from the aorta through the ductus Botelli. The livers fused into one mass, with an absence of gall bladders, the duodenum opening freely into the abdominal cavity, and the small intestines recommencing again with two large ampullæ, also opening into the abdominal cavity.—*Boston Med. and Surg. Journ.*, Dec. 22, 1881.

PERSONAL.—The Order of the Cross and Collar of Knight Commander of the Crown of Italy has been conferred upon Sir William Mac Cormac by King Humbert, in recognition of his distinguished scientific attainments.

NOTES AND QUERIES.

IS THE RADESYPGE SYPHILIS?

DR. MAGELSEN, of Rushford, Minn., writes us that the "radesypge" is really syphilis, and that form which the French writers call "syphilide tuberculo-serpigneuse," and the Germans "lupus syphilitica." For further information on the subject he refers to *Recueil d'Observations sur les Maladies de la Peau*, par W. Boeck and D. E. Danielssen, 2d livraison, La Radesypge, Christiania, 1860, and *Recherches sur la Syphilis*, par W. Boeck, Christiania, 1862, p. 681.

"THE FUTURE OF INOCULATION."

Our clever contemporary *Punch*, in a late number, gives, as a practical development of Pasteur's recent researches upon inoculation of cultured disease germs, a well-drawn picture of the interior of an apothecary shop, where the following dialogue is taking place:

Customer.—"My nephew is just starting for Sierra Leone, and I thought I could not make him a more useful present than a dose of your best yellow fever. Would you tell me the price, please?"

Chemist.—"Well, ma'am, the germs are so difficult to cultivate in Europe, that I would advise your waiting for the next West-Indian mail, when I am expecting a nice fresh consignment from St. Thomas. Meanwhile we would recommend our half-guinea traveller's assortment of the six commonest zymotics, and could add most of the tropical diseases from stock at five shillings each. We have some nice Asiatic cholera, just ripe, but they are more expensive."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 17, TO JANUARY 23, 1882.

GARDNER, WM. H., *Captain and Assistant Surgeon.*—Now at St. Augustine, Fla., to proceed to San Antonio, Texas, and report in person to the commanding general, Department of Texas, for assignment to duty.—*S. O. 14, A. G. O., January 19, 1882.*

LA GARDE, L. A., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, to take effect on arrival of A.-A.-Surgeon Collins at Cantonment, on the North Fork of the Canadian River, Ind. T.—*S. O. 12, Department of the Missouri, January 16, 1882.*

BIRMINGHAM, H. P., *First Lieutenant and Assistant Surgeon.*—Who returned to Ft. Leavenworth, Kans., on 12th instant, from leave of absence, to proceed to Fort Gibson, Ind. T., and report to the commanding officer for duty, relieving A.-A.-Surgeon Collins.—*S. O. 12, c. s., Department of the Missouri.*

MADDIX, THOMAS J. C., *First Lieutenant and Assistant Surgeon.*—Having reported at these Headquarters in compliance with *S. O. 2, c. s., A. G. O.*, will report to the commanding officer, Fort Clark, Texas, for duty.—*S. O. 6, Department of Texas, January 16, 1882.*

WHITEHEAD, W. E., *Captain and Assistant Surgeon.*—Died at Tarrytown, N. Y., on January 15, 1882.

THE MEDICAL NEWS will be pleased to receive early intelligence of local events of general medical interest, or which it is desirable to bring to the notice of the profession.

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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